DOCUMENT RESUME

ED 166 255 TM 008 322

AUTHOR	Nesbee, Cyril B.
TITLE	South Carolina Statewide Testing Program 1977-78. General Report. Office of Research Report Series. Volume One/Number 10.
INSTITUTION	South Carolina State Dept. of Education, Columbia. Office of Research.
PUB DATE	Aug 78
NOTE	184p.
EDRS PRICE	MF-$0.83 HC-$10.03 Plus Postage.
DESCRIPTORS	*Academic Achievement; *Achievement Tests; Age Differences; Basic Skills; Educational Assessment; Elementary Secondary Education; Grade Equivalent Scores; National Norms; Norm Referenced Tests; *State Programs; *Testing Programs; Test Interpretation; Test Reliability; *Test Results
IDENTIFIERS	Comprehensive Tests of Basic Skills; Out of Level Testing; *South Carolina

ABSTRACT

The results and methodology of the South Carolina 1977-78 statewide spring testing program for grades 3, 6, and 11 are presented and discussed. The discussion of the results focuses on a comparison of the 1978 results to national norms, a comparison of 1978 to 1977 results, a performance comparison across grade levels, and a comparison of skill area and subskill area performance within grade levels. Data are given by race, sex, and Title I status, and statistics are also given for data adjusted to weight white and nonwhite students proportionately to the national normative sample. The first chapter discusses the nature of the testing program, its purpose and objectives, and the changes in the program since its beginning in 1970. Chapter two discusses methodology with respect to student participation, the tests that were chosen, the use of functional-level testing (that is, the use of below-level tests in schools that previously had large proportions of low scoring students), operational procedures, and limitations on the interpretation of test results. Chapter three discusses the interpretation of scores and score reports, describes the various report forms and defines and discusses terminology. The last four chapters present the results of the testing. (Author/CTM)

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South Carolina Statewide Testing Program 1977-78

General Report

Office of Research
Report Series

Volume One / Number 40

South Carolina Department of Education
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TM008 322

SOUTH CAROLINA STATEWIDE TESTING PROGRAM 1977-78

GENERAL REPORT

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ABSTRACT

The primary purpose of the 1977-78 Statewide Testing Program was to assess the achievement of 3rd, 6th, and 11th grade students in South Carolina's public schools. The results from the Statewide Testing Program provide educators with information which facilitates the decision-making process at the State, district, and school levels.

A standardized norm-referenced test, the Comprehensive Tests of Basic Skills, Form S (CTBS/S), was the instrument used to measure achievement in the basic skill areas of Reading, Language, Mathematics, Reference Skills, Science, and Social Studies.

For the second consecutive year, two levels of the test were administered in each of the two elementary grades, Grade 3 and Grade 6. Therefore, either Level C or Level 1 of the CTBS/S was administered to 3rd grade students on a school basis; either Level 1 or Level 2 of the CTBS/S was administered to 6th grade students on a school basis; and Level 4 of the CTBS/S was administered to 11th grade students.

Because of changes in the testing programs before 1976-77, the 1977-78 testing results should be compared only to the 1976-77 results. One reason for the lack of comparability between 1977-78 and 1976-77 results and the results before 1976-77 was the change in administration dates from Fall to Spring, beginning with the 1976-77 program. With the change from Fall to Spring testing, the lower two grades tested were changed from Grade 4 to Grade 3 and from Grade 7 to Grade 6. Additionally, the change from sample testing to universe testing in Grade 11 occurred in the 1976-77 program.

All 92 South Carolina school districts participated in the 1977-78 Statewide Testing Program at a minimum of one grade level. Ninety of the 92 school districts participated at all three grade levels. A total of 126,758 South Carolina 3rd, 6th, and 11th graders was tested as part of the 1977-78 Statewide Testing Program in late March or early April. At Grade 3, a total of 43,359 students was tested; at Grade 6, a total

of 44,216 students was tested; and, at Grade 11, a total of 39,183 students was tested.

In all three grades, more than 40 percent of South Carolina's students scored above the national average in the skill areas of Language, Science, and Social Studies. The lowest performance for all three grades was in Mathematics.

In the area of Language, 46.2 percent of South Carolina's 3rd graders scored above the national average; 43.0 percent of the 6th graders, and 40.1 percent of the 11th graders also scored above the national average.

In the areas of Reading, 44.4 percent of South Carolina's 3rd graders surpassed the national average, while 39.7 percent of the 6th graders and 35.8 percent of the 11th graders exceeded the national average.

In Mathematics, 41.4 percent of the 3rd graders scored above the national average with 34.8 percent of the 6th graders and 32.4 percent of the 11th graders scoring above the national average.

The highest average scores for South Carolina's students were recorded by 6th graders in the areas of Science and Reference Skills. In Science, 47.9 percent of the 6th graders scored above the national average; and, in Reference Skills, 47.2 percent exceeded the national average.

For their grade level, 6th grade students outperformed 3rd graders relative to the nation in Science. Sixth graders also performed at a higher level than 11th graders relative to the nation in Science and Reference Skills. However, 3rd graders consistently outperformed students in the 6th and 11th grades relative to the nation in Reading, Language, and Mathematics.

Although a number of South Carolina's scores on the average were below the national sample of students, a substantial number of South Carolina students at each grade level scored well above the national average. In view of the fact that the characteristics of the national sample differ considerably from the characteristics of students in South Carolina in terms of racial composition, socioeconomic status, and other

factors, the results from the 1977-78 Statewide Testing Program appear encouraging.

Both 3rd and 6th graders showed measurable improvement over last year's performances, while 11th graders declined slightly.

For 3rd graders, approximately 5 percent more students scored above the national average in the area of Mathematics when compared with last year's results; 4 percent more in Reading; and 3 percent more in Language. Increases of 4 and 2 percent were evidenced in the areas of Science and Social Studies, respectively.

When compared with last year, additional percentages of 6th grade students performing above the national average were 2 percent for the area of Reading, 2 percent for Mathematics, and 1 percent for Language. The areas of Reference Skills and Science had 2 percent increases, while Social Studies increased 1 percent.

This year's 11th grade performance was slightly lower overall than last year's performance. However, the changes only varied from a decrease of 1 percent in Reading to an increase of 1 percent in Science.

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SOUTH CAROLINA STATEWIDE TESTING PROGRAM 1977-78

GENERAL REPORT

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CHAPTER I

NATURE OF THE SOUTH CAROLINA STATEWIDE TESTING PROGRAM

Introduction

The purpose of this report is to present the methodology and results of the Spring 1978 administration of the South Carolina Statewide Testing Program. The discussion of the results focuses on a comparison of the Spring 1978 results to the national results, a comparison of the Spring 1978 results to Spring 1977 results, an overall performance comparison across grade levels, a comparison of skill area performance across grade levels, and a comparison of skill area and subskill area performance across and within grade levels. Also featured is a comparison of the State results across Grades 3, 6, and 11 by race, sex, and Title I status. Further discussion of the results centers on an adjusted analysis of the State results. In this adjusted analysis, South Carolina's test scores are weighted in order to compensate for differences between South Carolina's population and the population on which the test was normed. The content of each chapter is briefly described in the remainder of this section.

Chapter I: Nature of the South Carolina Statewide Testing Program. The first two sections of this chapter include the purpose of the testing program and the program objectives, respectively. Major changes in the 1977-78 Statewide Testing Program as they relate to results interpretation are outlined in the third section. The closing section describes major developments in the Statewide Testing Program with respect to populations tested and instrumentation for the 1971-72, 1972-73, 1973-74, 1974-75, 1975-76, and 1976-77 Statewide Testing Programs.

Chapter II: Methodology. This chapter consists of four sections related to the methodology employed in conducting the 1977-78 Statewide Testing Program. In the first of these sections, "Participation", the

grades tested, the criteria for determining those students who were not eligible to be tested as part of the program, and the numbers and percentages of students tested in each grade are discussed. The instruments administered in each grade tested and the functional-level testing approach are discussed; and the reliability coefficients for the tests and subtests are presented in the section, "Instrumentation". The rationale and the establishment of criteria for the functional-level testing approach are discussed in the third section, "Rationale and Development of Criteria for Functional-Level Testing". In the fourth section, "Procedures", the procedures essential to the operation of the Statewide Testing Program are briefly described. The limitations on the interpretation of the State test results are discussed in the fifth section, "Limitations on Interpretation of Test Results".

Chapter III: Interpretation of the Test Scores and Score Reports. This chapter consists of three sections related to the interpretation of test scores and score reports. The first of these sections, "Norm-Referenced Test Interpretation", describes the construction of a norm-referenced test and poses several questions which norm-referenced test results can assist in answering. In the second section, "Definitions of Test Scores", means, medians, raw scores, scale scores, percentiles, stanines, grade equivalents, and normal curve equivalents are defined; and their strengths and weaknesses are discussed. In the third section, "Description of Score Reports", the Individual Test Record, the Class Record Sheet, the Right Response Summary, the Frequency Distribution, and the Evaluator's Summary are briefly described in terms of the information and test scores provided on each score report.

Chapter IV: Comparisons of Spring 1978 Performance in South Carolina to Performance in the Nation and to Spring 1977 Performance in South Carolina. This chapter consists of two sections. The titles of these two sections are "Comparison of 1978 Performance in South Carolina to Performance in the Nation" and "Comparison of Spring 1978 Performance in South Carolina to Spring 1977 Performance in South Carolina". The first section compares the performance of South Carolina students to the

performance of students in the nation by grade level, using median national percentiles. The second section compares student performance for Spring 1978 to student performance for Spring 1977 for each grade level. Comparisons are based on median national percentiles and the percentages of South Carolina students in the upper half of the national distribution.

Chapter V: Comparison of Student Performance in South Carolina Across and Within Grade Levels. In the first section, "Comparison of Overall Performance Across Grades 3, 6, and 11", the overall performance of 3rd, 6th, and 11th graders is discussed by comparing the Battery Total frequency distributions for each grade. The second section, "Comparison of Skill Area Performance Across Grades 3, 6, and 11", focuses on skill area comparisons of student performance across grades. The percentages of 3rd, 6th, and 11th grade students scoring in each of the four national quarters are compared by skill area. The third section, "Comparison of Skill Area and Subskill Area Performance Across and Within Grades 3, 6, and 11", presents comparisons across and within grade levels. Normal curve equivalent scores are used to examine each skill and subskill area.

Chapter VI: Comparisons of Subgroup Performance Across and Within Grades and of Adjusted South Carolina Data. This chapter is subdivided into two sections. In the first section, "Comparison of Subgroup Performance Across and Within Grades", across and within grade performance comparisons are made for six different subgroups of students: whites, nonwhites, males, females, non-Title I students, and Title I students. In the second section, "Comparison of Adjusted South Carolina Data to the National Normative Data", South Carolina's test scores at each of Grades 3, 6, and 11 are discussed for Battery Total, using frequency distributions adjusted by race, and for the skill areas, using normal curve equivalents adjusted by race.

Chapter VII: Utilization of Right Response Summary Results for Instructional Purposes. This chapter consists of three sections. In the first section, "Procedure for Use of Right Response Summary Results", a procedure is described that can assist in determining skill

area priorities for instructional focus. In the second section, "Limitations on Use of Right Response Summary Results", limitations imposed on the interpretation of the Right Response Summary results as a consequence of functional-level testing are discussed. In the third section, "Right Response Summary Results", the State Right Response Summary results are used to illustrate the procedure outlined in the first section of the chapter for identifying areas of instructional priority.

Purpose of the Statewide Testing Program

The primary purpose of the Statewide Testing Program is to provide a means of monitoring student achievement in the South Carolina public schools. Additionally, within the State Department of Education, the testing program data are used in the evaluation of the Basic Skills Major Objective which is included in South Carolina's Five-Year Plan for Continuous Upgrading of Education. Equally important, the test results provide educators with information which facilitates the decision-making process at the State, district, and school levels. Concurrently, the Statewide Testing Program provides a service to districts in that the program funds relieve a portion of the financial burden of the district testing programs and, in many districts, constitutes a major part of the districtwide testing program. Since the spring administration of the program coincides with Title I testing, the testing program further serves districts by supplementing testing for Title I program evaluations.

Objectives of the Statewide Testing Program

The objectives of the Statewide Testing Program were originally established in 1970-71 as part of the 4th grade testing program. These objectives, however, were modified over the past seven years to reflect the yearly changes in the testing program. Following are the objectives for the 1977-78 testing program.

1. to provide a valid measure of student achievement in the basic skill areas of Reading, Language, Mathematics, Science, and Social Studies in Grade 3;

2. to provide a valid measure of student achievement in the basic skill areas of Reading, Language, Mathematics, Reference Skills, Science, and Social Studies in Grades 6 and 11;

3. to compare the achievement of 3rd, 6th, and 11th grade students in South Carolina with the achievement of 3rd, 6th, and 11th grade students in the nation, using the national normative data provided by the test publisher;

4. to determine the achievement levels of students in Grades 3, 6, and 11 in order to assist in the development of instructional objectives and to evaluate the degree of effectiveness of these objectives;

5. to fulfill the requirements of the Basic Skills Major Objective as specified by South Carolina's Five-Year Plan for Continuous Upgrading of Education;

6. to provide a measure of educational quality in South Carolina public schools; and

7. to encourage effective utilization of test data in guidance and in instructional programs in Grades 3, 6, and 11.

Major Changes in the 1977-78 Statewide Testing Program

The 1977-78 Statewide Testing Program represented the second year of the administration of the testing program under the guidelines of the 1976-77 Statewide Testing Program. The 1976-77 Statewide Testing Program established a new baseline year in terms of test comparisons because of changes in test administration time, student populations tested, and the testing instrumentation. In 1977-78, for the second year, South Carolina's 3rd, 6th, and 11th grade students were administered the Comprehensive Tests of Basic Skills, Form S (CTBS/S), using the functional-level testing approach. As a result of functional-level testing, students in Grade 3 were administered either Level C or Level 1; and students in Grade 6 were administered either Level 1 or Level 2.

One difference between this year's program and last year's program was the use of more comprehensive and relevant data in establishing the criteria for the test level recommendations for each participating school. These criteria are discussed in detail in Chapter II. This change, however, was not considered significant enough to re-establish 1977-78 as a new baseline year in terms of results comparisons. A second change, which did not affect the results comparisons of the two years, was the move to scoring the Grade 11 answer sheets within the Department.

Developments in the Statewide Testing Program from 1970-71 through 1976-77

The forerunner of the Statewide Testing Program was actually a free test scoring service which was offered by the State Department of Education to the public schools in the State. The scoring service was established in 1965-66 through funds available under the Elementary and Secondary Education Act, Title V. Because of the many difficulties that arose when scoring a large number of tests published by many different companies, the scoring service was not offered after the Year 1969-70.

During the Year 1970-71, the groundwork for the Statewide Testing Program was laid in accordance with the federal regulations for Title III of the Elementary and Secondary Education Act. The regulation stated:

> The State Plan shall set forth a program for testing students in the elementary and secondary schools of the State...which describes the means of testing, including the types of tests and grade levels of students.

The South Carolina State Plan provided for the testing of student achievement at grade levels designated by the State Department of Education. All public and certain non-public schools were included in the plan and could participate on a voluntary basis. In 1970-71, only students in Grade 4 participated in the Statewide Testing Program. The Comprehensive Tests of Basic Skills, Form Q (CTBS/Q), was administered

to the universe of 4th grade students.

In order to simultaneously meet both federal and State requirements, the testing program was expanded in 1971-72 to include Grades 7, 9, and 12, as well as Grade 4. Based upon expressed district desires, information provided by various consultants, and the evaluation of the State Department of Education Committee on Testing, a plan utilizing two testing companies, California Test Bureau (CTB) and Science Research Asssociates (SRA), was decided upon. The CTBS/Q, which was administered to 4th and 7th grade students, and the Short Form Test of Academic Aptitude (SFTAA), which was administered to 4th grade students only, were utilized under contract with the California Test Bureau. The Iowa Tests of Educational Development (ITED), which was administered to 9th and 12th grade students, was utilized under contract with Science Research Associates. The CTBS/Q, the SFTAA, and the ITED constituted the instrumentation for both the 1971-72 and 1972-73 Statewide Testing Programs. During the Years 1971-72 and 1972-73, 4th and 7th grade students were tested on a universe basis; however, the 9th and 12th grade students were tested only on a sample basis.

In 1973-74, the decision was made to sample test students in Grade 11 instead of those in Grade 12 since there was a need to evaluate specific objectives of the State's Five-Year Plan which referenced the performance of 16-year-old students. Concurrent with this change in the populations tested was a change in instrumentation. The decision was made to replace the ITED by the CTBS, Form S (CTBS/S), for measuring the achievement levels of 9th and 11th graders. The CTBS, Form S, also replaced the CTBS, Form Q, in the 4th and 7th grades. Because of the change from Form Q to Form S across all grades tested, the 1973-74 testing results became the new baseline data for the Statewide Testing Program. In that same year, off-level testing in Grades 7 and 9 was initiated on a statewide basis upon recommendation by CTB/McGraw-Hill. The reason for off-level testing was that the average South Carolina student in the 7th and 9th grades was achieving at a level somewhat below the average student in the nation. Therefore, CTB/McGraw-Hill

suggested that a lower level of the test than was normally recommended be administered statewide in Grades 7 and 9 in order to more closely approximate the achievement levels of students in these grades.

The grades tested with the CTBS/S in the 1974-75 Statewide Testing Program were the same as those tested in the 1973-74 Statewide Testing Program. For the second consecutive year, the CTBS/S was administered to students in Grades 4, 7, 9, and 11 with the SFTAA administered to students in Grade 4 only. The Student Survey and Attitude Inventory (SSAI) was incorporated as part of the 1974-75 Statewide Testing Program and was administered to all students in Grade 7 and a sample of students in Grades 9 and 11. The State Department of Education adopted the SSAI as a measure of self-concept which is measured by one of the subscales of this instrument.

In the 1975-76 Statewide Testing Program, 4th, 7th, and 11th grade students were tested with the CTBS/S under the guidelines for the 1974-75 Statewide Testing Program; however, the sample testing of 9th grade students, using the CTBS/S, was eliminated. The SFTAA was again administered in the 4th grade only. The only other change which occurred from 1974-75 to 1975-76 was that the SSAI was administered only to students in Grade 11 rather than to students in Grades 7, 9, and 11.

With the 1976-77 Statewide Testing Program came several major changes. The actual time of testing was moved from fall to spring since a majority of the districts preferred spring testing. Additional reasons for the change to spring testing were that the CTBS/S was standardized in the spring and that the testing time coincided with the evaluation of Title I programs. A change related to spring testing was the move from the testing of students in Grades 4, 7, and 11 to the testing of new populations of students in Grades 3, 6, and 11. In past years of the program, all students in the lower two grades were tested; and only a sample of students in Grade 11 was tested. However, in 1976-77 for the first time since the implementation of the testing program, the universe of 11th graders were tested. A major change occurred in instrumentation as a result of the functional-level testing approach. This testing approach involved administering two different

levels of the CTBS/S in Grades 3 and 6 on a school basis to avoid testing students with a level of the test that was too difficult. Students in Grade 3 schools were administered either Level C or Level 1 of the CTBS/S; and students in Grade 6 were administered either Level 1 or Level 2 of the CTBS/S. All students in Grade 11 were tested with Level 4 of the CTBS/S. Two other developments that occurred with respect to instrumentation were the elimination of the administration of the SSAI and the SFTAA as part of the testing program.

In view of the changes that have taken place over the past years in the Statewide Testing Program, the Years 1970-71, 1973-74, and 1976-77 were considered baseline years. Thus, Statewide Testing Program results for the Years 1970-71, 1971-72, and 1972-73 are comparable; Statewide Testing Program results for the Years 1973-74, 1974-75, and 1975-76 are comparable; and Statewide Testing Program results for the Years 1976-77 and 1977-78 are comparable. However, the Statewide Testing Program results for 1970-71 are not compatible with those for 1973-74 or with those for 1976-77. Incorrect comparisons of results could lead to incorrect interpretations about student achievement over time.

CHAPTER II

METHODOLOGY

Introduction

The purpose of this chapter is to discuss the methodology and procedures used in the implementation of the 1977-78 South Carolina Statewide Testing Program. The chapter is divided into five major sections. The first section, "Participation", presents the procedures for determining which students were eligible to be tested as part of the Statewide Testing Program and the numbers of students tested at each of the three grade levels. The second section, "Instrumentation", describes each of the levels of the Comprehensive Tests of Basic Skills, Form S (CTBS/S), administered to South Carolina students and presents the reliability coefficients based on the South Carolina test data. The rationale and the establishment of criteria for the functional-level testing approach are discussed in the third section, "Rationale and Development of Criteria for Functional-Level Testing". An overview of the major activities involved in the Statewide Testing Program is provided in the fourth section, "Procedures". The fifth section, "Limitations on Interpretation of Test Results", considers problems associated with the interpretation of the CTBS/S results.

Participation

The target populations for the 1977-78 South Carolina Statewide Testing Program were the universe of South Carolina students in Grades 3, 6, and 11. District participation in the Statewide Testing Program was on a voluntary basis. Therefore, all 3rd, 6th, and 11th grade students enrolled in the public school districts that elected to participate in the testing program were eligible to be tested. All 92

school districts chose to participate in the testing program at a minimum of one grade level. Ninety of the 92 South Carolina school districts participated in the Statewide Testing Program at all three grade levels. Of the two districts that did not participate at all three grade levels, one district participated at the 11th grade level only; and another district participated at the 3rd and 11th grade levels only.

Students enrolled in programs for the handicapped, including those in self-contained, resource, or itinerant models, were excluded from the Statewide Testing Program. However, students in speech handicapped programs could participate if these students were not also enrolled in another program for the handicapped. A total of 126,758 South Carolina 3rd, 6th, and 11th graders of those eligible was tested as part of the 1977-78 Statewide Testing Program. At the 3rd grade level, a total of 43,359 students was tested. Level C of the CTBS/S was administered to 10,267 (23.7%) of the 3rd graders, and Level 1 of the CTBS/S was administered to 33,092 (76.3%) of the 3rd graders. At the 6th grade level, a total of 44,216 students was tested. Level 1 of the CTBS/S was administered to 10,213 (23.1%) of the 6th graders, and Level 2 of the CTBS/S was administered to 34,003 (76.9%) of the 6th graders. In the 11th grade, a total of 39,183 students was administered Level 4 of the CTBS/S.

Instrumentation

Use of the Comprehensive Tests of Basic Skills, Form S (CTBS/S), published by CTB/McGraw-Hill, was continued in the Spring 1978 Statewide Testing Program. The CTBS/S is a nationally standardized norm-referenced test designed to measure student achievement in the basic skill areas of Reading, Language, Mathematics, Reference Skills, Science, and Social Studies. Levels C and 1 of the CTBS/S were administered in Grade 3 on a school basis; Levels 1 and 2 of the CTBS/S were administered in Grade 6 on a school basis; and Level 4 of the CTBS/S was administered universally in Grade 11. The administration of

two different levels of the test in Grades 3 and 6 on a school basis was a consequence of the implementation of functional-level testing. In the Spring 1978 Statewide Testing Program, functional-level testing was not utilized in Grade 11 since only Level 4 of the CTBS/S was administered. The rationale for the functional-level testing approach and the criteria used in making the test level recommendations for each participating 3rd and 6th grade school are discussed in the next major section. In this section, the description of the CTBS/S tests and subtests comprising Levels C, 1, 2, and 4 is followed by a presentation of the reliability coefficients for each grade and test level.

Description of the Comprehensive Tests of Basic Skills

Level C of the CTBS/S is designed to provide five basic skill area scores (Reading Total, Language Total, Mathematics Total, Science, and Social Studies) and a Battery Total score. Whereas, Levels 1, 2, and 4 are designed to provide six skill area scores (Reading Total, Language Total, Mathematics Total, Reference Skills, Science, and Social Studies) and a Battery Total score. Note that Levels 1, 2, and 4 also include the basic skill area of Reference Skills in addition to the five basic skill areas on Level C.

For all four levels of the CTBS/S, the Reading, Language, and the Mathematics Tests are combined to produce the Battery Total score. In computing the Battery Total score, all of the items on the Reading, Language, and Mathematics Tests are pooled; and a score is generated from this new set of items. Additionally, only the scores of students who completed all parts of the Reading, Language, and Mathematics Tests are included in the Battery Total score. Consequently, the Battery Total score may actually be lower than the average of the Reading Total score, Language Total score, and Mathematics Total score and lower than any one of these individual total scores.

The three skill areas (Reading, Language, and Mathematics) that contribute to the Battery Total score are the only skill areas that are composed of subskill areas or subtests. Additionally, the subtests for

Level C differ from the subtests for Levels 1, 2, and 4.

The Reading Total score for Level C is a composite score of three subtests; whereas, the Reading Total score for Levels 1, 2, and 4 is a composite score of two subtests. The Reading Total score for Level C is derived on the basis of all items on the Reading Vocabulary, Reading Comprehension (Sentences), and Reading Comprehension (Passages) Subtests. The Reading Total score for Levels 1, 2, and 4 is derived on the basis of all items on the Reading Vocabulary and Reading Comprehension Subtests.

The Language Total score for all levels is derived on the basis of all items on the Language Mechanics, Language Expression, and Spelling Subtests.

The Mathematics Total score for Level C is a composite of two subtest scores, one for Mathematics Computation and one for Mathematics Concepts and Applications combined. However, the Mathematics Total score for Levels 1, 2, and 4 is derived from items on the three subtests, Mathematics Computation, Mathematics Concepts, and Mathematics Applications.

The items included on each of the subtests of the CTBS/S were developed to measure both subject area content and thinking processes. Since curricular content varies from state to state, the subject area content tested on the various subtests is general in nature rather than specific. Additionally, each content area is measured at one or more thinking process levels. Thus, the items are designed to assess not only what the student knows but also the level at which the student can deal with what he knows.

Following are the definitions of the five thinking process areas which are used in classifying content on the CTBS/S:

1. Recognition: the ability to recognize or recall information;

2. Translation: the ability to translate or convert concepts from one form of language (verbal or symbolic) to another;

3. Interpretation: the ability to comprehend ideas and the relationships and interrelationships of these ideas;

4. Application: the ability to apply techniques, including performing fundamental operations; and

5. Analysis: the ability to extend interpretation beyond the stated information.

(Consult the CTBS/S Expanded Edition, Test Coordinators Handbook, for the complete rationale and the content/process classification of each item included on the various subtests of the CTBS/S.) The content and thinking process areas measured by the various subtests of the CTBS/S are described in the ensuing discussion.

Reading (Level C): The Reading Vocabulary Subtest requires the student to select the word that matches the definition read by the test administrator. The Reading Comprehension (Sentences) Subtest requires the student to select the word that semantically and syntactically best completes a sentence. In the Reading Comprehension (Passages) Subtest, the students are presented with six brief passages or letters and are asked questions that measure specific skills, including literal recall, rewording of details, using context clues to answer questions, stating the main idea, and interpreting a story to reach a conclusion.

Reading (Levels 1, 2, and 4): The Reading Vocabulary Subtest requires the student to select a synonym for a word or words presented in the context of a sentence or passage. The Reading Comprehension Subtest requires the student to read passages, letters, poems, and articles and to answer questions measuring literal recall, identification of main ideas, ability to draw conclusions, and other reading skills.

Language (All Levels): The Language Mechanics Subtest measures student skills in capitalization and in punctuation. The Language Expression Subtest measures various aspects of effective expression such as standard English usage, diction, and organizational skills. The Spelling Subtest measures the ability of the student to recognize correctly and incorrectly spelled words in sentence context.

Mathematics (Level C): The Mathematics Computation Subtest measures the ability of the student to add, subtract, multiply, and

divide. The Mathematics Concepts and Applications Subtest measures skills related to operations with numbers, numeration, measurement, and fractions. Problem solving is measured by having the teacher read the problem aloud to the student who then selects the appropriate response from among the choices given.

Mathematics (Levels 1, 2, and 4): The Mathematics Computation Subtest requires the student to add, subtract, multiply, and divide. The Mathematics Concepts Subtest measures the student's ability to recognize or apply appropriate concepts and techniques, and the Mathematics Applications Subtest measures the student's ability to solve problems.

Reference Skills (Levels 1, 2, and 4): The Reference Skills Subtest contains items which measure the ability to use reference materials and follow library procedures. More specifically, these items require the ability to use information on catalogue cards, the ability to use dictionary conventions, and the ability to identify various parts of a book and the functions of these parts.

Science (All Levels): The Science Subtest is comprised of items which assess the student's ability to investigate problems in Science and, to a lesser degree, to recall scientific facts or concepts. Investigative skills measured are the abilities to classify objects or phenomena, to measure or quantify data, to recognize a trend in data, to predict the outcome of a trend in data, to recognize valid hypotheses drawn from data presented, and to analyze an experimental design. The student demonstrates these skills by interacting with data presented in charts, diagrams, drawings, graphs, and written passages. The items are distributed across the various content areas of the physical and life sciences.

Social Studies (All Levels): The Social Studies Subtest contains items which measure the student's grasp of concepts, generalizations, and inquiry skills necessary for effective problem solving in social studies. The social studies skills tested draw from four content areas: the physical environment, the social environment, the political/economic environment, and history. The student is required to recall specific

information, to read maps and other graphic material, to select and evaluate research designs, to distinguish fact from opinion, and to employ formal logic in problem solving.

Reliability

Reliability is a measure of the extent to which test items are all measuring the same characteristic or quality. Reliability is measured by an index called a reliability coefficient which ranges in value from 0 to 1.0. The closer the reliability coefficient is to 1.0, the more reliable the test or subtest is considered to be.

Within the three grades that participated in the Statewide Testing Program, there was a total of five administrations of four different levels of the CTBS/S. Grade 3 was administered either Level C or Level 1; Grade 6 was administered either Level 1 or Level 2; and Grade 11 was administered Level 4. Reliability coefficients were computed for each of the tests and subtests and for Battery Total for each level of the CTBS/S at each grade level.

Two coefficients of reliability were computed for the tests and subtests and for the Battery Total: (1) Cronbach's alpha and (2) Guttman's lambda. Since the data were dichotomized, the Cronbach alpha obtained is equivalent to the Kuder-Richardson 20 (KR-20) reliability coefficient. The Cronbach coefficients are presented in Table 2.1 and are denoted by α. The Guttman coefficients are also presented in Table 2.1 and are denoted by λ.

The reliability coefficients for the tests, subtests, and Battery Total of Level C at Grade 3 ranged from .84 to .99; Level 1 at Grade 3, from .84 to .99; Level 1 at Grade 6, from .85 to .99; Level 2 at Grade 6, from .79 to .99; and Level 4 at Grade 11, from .78 to .99. The fact that all of the CTBS/S reliability coefficients were .78 or larger for all of the tests, subtests, and Battery Totals for all levels indicates that the CTBS/S is a reliable or consistent norm-referenced measure of South Carolina student achievement.

Table 2.1

Reliability Coefficients for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Subtests and Tests

Subtests and Tests	Grade 3				Grade 6				Grade 11	
	Level C		Level 1		Level 1		Level 2		Level 4	
	α[a]	λ[b]	α[a]	λ[b]	α[a]	λ[b]	α[a]	λ[b]	α[a]	λ[b]
Reading Vocabulary	.91	.92	.92	.92	.92	.93	.93	.93	.93	.93
Reading Comprehension	NA[c]	NA[c]	.93	.94	.94	.94	.93	.93	.92	.92
Reading Comprehension Sentences	.94	.94	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]
Reading Comprehension Passages	.91	.91	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]
Reading Total	.97	.98	.96	.96	.96	.97	.96	.96	.96	.96
Language Mechanics	.87	.89	.85	.86	.86	.86	.79	.79	.78	.78
Language Expression	.89	.89	.89	.89	.88	.89	.88	.88	.87	.88
Spelling	.89	.90	.86	.87	.88	.89	.88	.89	.89	.89
Language Total	.94	.96	.94	.95	.94	.96	.94	.94	.94	.94
Mathematics Computation	.86	.88	.93	.94	.93	.94	.92	.92	.94	.95
Mathematics Concepts	NA[c]	NA[c]	.85	.86	.87	.88	.83	.83	.88	.89
Mathematics Applications	NA[c]	NA[c]	.90	.90	.90	.90	.89	.89	.89	.89
Mathematics Concepts & Applications	.84	.85	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]	NA[d]
Mathematics Total	.91	.93	.96	.97	.96	.96	.95	.96	.97	.97
Battery Total	.98	.99	.98	.99	.98	.99	.98	.99	.98	.99
Reference Skills	NA[c]	.84	.84	.85	.85	.85	.85	.85	.83	.83
Science	.84	.85	.86	.87	.88	.89	.85	.85	.86	.87
Social Studies	.84	.85	.89	.90	.90	.91	.88	.88	.91	.91

[a] α denotes Cronbach alpha reliability coefficient.

[b] λ denotes the maximum λ_i where i=1, ..., 6 and each λ_i is one of six Guttman's lambdas.

[c] Subtests not included on Level C.

[d] Test or subtest not included on Levels 1, 2, or 4.

Rationale and Development of Criteria for Functional-Level Testing

For purposes of the 1976-77 and 1977-78 Statewide Testing Programs, functional-level testing was defined as administering on a school basis a lower level of the CTBS/S than the level normally recommended by the test publisher. The decision to implement functional-level testing in Grades 3 and 6 was initially made in 1976-77 as a result of reviewing the Fall 1975 CTBS/S data for Grades 4 and 7. In the Fall 1975 testing program, Levels 1 and 2 of the CTBS/S were administered universally in Grades 4 and 7, respectively. Level 1 is the level of the test normally recommended by the publisher for use in Grade 4, and Level 2 is a lower level of the test than the level normally recommended by the publisher for use in Grade 7. However, the Fall 1975 test results indicated that large percentages of 4th and 7th graders were scoring at or below a chance level. A probable reason for this phenomenon was that the levels utilized were too difficult for a large number of South Carolina 4th and 7th grade students and, hence, were providing very little information on student achievement. This observation suggested that in order for meaningful measurement to be obtained on 3rd and 6th graders in the 1976-77 testing program, the utilization of levels of the test more compatible with the abilities of the students was necessary.

The norming procedures used in the standardization of the CTBS/S made functional-level testing possible. In norming each of the seven levels of the CTBS/S, the test publisher overlapped the grades so that each test level could be used for a range of grades. For example, Level 1 was normed for students in the 2nd, 3rd, and 4th grades; and Level 2, the next level with respect to difficulty, was normed for students in the 4th, 5th, and 6th grades. Therefore, although some 4th graders might find Level 2 somewhat difficult while other 4th graders might find Level 1 easy, either Level 1 or Level 2 could be administered to 4th grade students. In either case, the performance of 4th grade students in some local group could be compared directly to the performance of the 4th grade students in the national sample.

Level 1 of the CTBS/S was designed and standardized for students in Grades 2.5 to 4.9 and is the level of the CTBS/S normally recommended by the test publisher for use in Grade 3. In fact, Level 1 is the only level of the CTBS/S for which 3rd grade norms are provided. Although Level C is normally recommended for use in Grades 1 and 2, the test publisher recommended the use of Level C as the functional-level test for Grade 3. Since Level C was not normed for 3rd graders, special methods for developing derived scores from raw scores were necessary for reporting these results.

For use at the 6th grade level, the test publishers developed Level 2, which was normed for Grades 4.5 to 6.9, and Level 3, which was normed for Grades 6.5 to 8.9. In the past, Level 2 (the off-level test for Grade 7) was used universally in Grade 7 as part of the Statewide Testing Program. However, even with the implementation of the off-level testing approach in Grade 7, the Fall 1975 test results still indicated that a large percentage of 7th graders were scoring at or below the chance level, the score a student is expected to obtain by random guessing alone. Therefore, the test publisher recommended the use of Level 1 as the functional-level test for the 6th grade population.

The fact that some 3rd and 6th graders in the 1976-77 Statewide Testing Program were to be tested with the functional-level test necessitated the development of criteria and procedures for identifying which schools should administer Level C instead of Level 1 in Grade 3 and which schools should administer Level 1 instead of Level 2 in Grade 6. Naturally, the best way to identify students for functional-level testing would be either to select low achieving students or to select groups of low achieving students within a school to take the functional-level test. However, neither of these approaches was deemed feasible because of logistical problems associated with test administration. Therefore, the school, rather than the individual student or a student group within a school, was used as the classification unit for functional-level testing.

For the 1976-77 Statewide Testing Program, the only data available for making the 3rd and 6th grade test level recommendations were the 4th

and 7th grade results from the 1975 Statewide Testing Program. Thus, based upon the results of the Fall 1975 4th grade test data, each 3rd grade school participating in the 1976-77 Statewide Testing Program was recommended to administer Level C or Level 1. Based upon the results of the Fall 1975 7th grade test data, each 6th grade school participating in the 1976-77 Statewide Testing Program was recommended to administer Level 1 or Level 2. The criteria for recommending the test levels for those 3rd and 6th grade schools in the 1976-77 school year follow.

1. In Grade 3, a school whose 1975 4th grade mean grade equivalent for the Battery Total was 3.1 or less should administer Level C of the CTBS/S to its 3rd grade students. Therefore, a school whose 1975 4th grade mean grade equivalent for the Battery Total was greater than 3.1 should administer Level 1 of the CTBS/S to its 3rd grade students.

2. In Grade 6, a school whose 1975 7th grade mean grade equivalent for the Battery Total was 5.1 or less should administer Level 1 of the CTBS/S to its 6th grade students. Therefore, a school whose 1975 7th grade mean grade equivalent for the Battery Total was greater than 5.1 should administer Level 2 of the CTBS/S to its 6th grade students.

Since functional-level testing was implemented in the 1976-77 school year, the 1977-78 Statewide Testing Program recommendations had the distinct advantage of having two sets of test data for use in the test level recommendations for each grade level in each school. Thus, the criteria used in making the 1977-78 Statewide Testing Program test level recommendations for Grades 3 and 6 consisted of examining the 1976-77 data and the 1975-76 data. The approximate cut-off scores established for viewing the 1976-77 data for Grades 3 and 6 are presented in Table 2.2.

In addition to using the Battery Total Median Percent(%) Correct for each school, the Battery Total Median Skewness, Battery Total Median Percent(%) Chance, Battery Total Median Percent(%) Omit, Reading Total Percent(%) Correct, Reading Total Median Skewness, and the number of

Table 2.2

Approximate Cut-Off Scores for Functional-Level Testing Recommendations in Grades 3 and 6

Grade	Level Used 1976-77	Approximate Cut-Off Scores Using Battery Total Median % Correct	Proposed 1977-78 Level Recommendation
3	Level C	Below 70% Correct	Level C
		Between 70%-85% Correct	Use Additional Information
		Above 85% Correct	Level 1
3	Level 1	Below 40% Correct	Level C
		Between 40%-50% Correct	Use Additional Information
		Above 50% Correct	Level 1
6	Level 1	Below 70% Correct	Level 1
		Between 70%-85% Correct	Use Additional Information
		Above 85% Correct	Level 2
6	Level 2	Below 40% Correct	Level 1
		Between 40%-50% Correct	Use Additional Information
		Above 50% Correct	Level 2

students tested were also examined based upon the 1976-77 test results. In conjunction with this 1976-77 data, the same data for 1975-76 in Grades 4 and 7 were reviewed for consistency with the 1976-77 data for Grades 3 and 6 before the proposed 1977-78 recommendations were confirmed. For schools that fell between the two level cut-off points at each grade level, the 1976-77 data for all subtests were examined, using the Median Percent(%) Correct and the Median Skewness. The decision point for these schools was primarily based upon whether the majority of the subtests' Median Percents(%) Correct fell in the "Below Percent(%) Correct" Category or the "Above Percent(%) Correct" Category for the grade level.

Following the establishment of the functional-level criteria for the 1977-78 Statewide Testing Program, the Office of Research used the same procedure as was used in the 1976-77 Statewide Testing program in making recommendations to each district with respect to the level of the CTBS/S that should be administered in each school at each grade level. Districts either concurred with these recommendations or deviated from the recommendations because of additional district information not available to the Office of Research. Then, dependent on the classification agreed upon by the district and the Office of Research, all students within a school at the appropriate grade level (3rd or 6th) were administered the functional-level or on-level test.

Procedures

The operation of the Statewide Testing Program was contingent upon the successful implementation of several major activities coordinated by the State Department of Education through the Educational Assessment Section, Office of Research. The District Test Coordinator, appointed by the District Superintendent, was responsible for coordinating the testing program activities at the local level. CTB/McGraw-Hill was responsible for the scoring of consumable test booklets and answer sheets for Grades 3 and 6, while the Data Center within the Department of Education was responsible for scoring the Grade 11 answer sheets.

Initially, forms were sent to the District Superintendents of each of the 92 public school districts to determine which districts would participate at each of Grades 3, 6, and 11. After district participation was finalized, the Office of Research applied the functional-level criteria in making recommendations concerning the levels of the CTBS/S to be administered in the various 3rd and 6th grade schools within each participating district. The recommendations were mailed to the District Test Coordinator of each district for confirmation. If any district disagreed with the recommendations for its schools, the District Test Coordinator worked directly with the Office of Research in resolving any differences.

The Office of Research submitted the materials order to CTB/McGraw-Hill after the recommendations had been confirmed. School enrollments provided by districts for the 3rd, 6th, and 11th grades, an inventory of test materials stored in the districts, and an inventory of test materials stored at the State Department of Education were used in estimating the CTBS/S materials for each district by test level. The CTBS/S materials order consisted of test booklets for Grades 3, 6, and 11 and answer sheets only for Grade 6. CTB/McGraw-Hill was responsible for shipping the appropriate test materials for Grades 3, 6, and 11 to each district two weeks prior to testing. Because Grade 11 tests were scored within the Department, Department Answer Sheets developed specifically for the Statewide Testing Program were mailed directly from the Department to each district at approximately the same time as the CTB/McGraw-Hill shipment of test materials.

Six regional Pretest Workshops were conducted on February 13, 14, 15, 21, 22, and 23 for the purpose of explaining details of the test administration to the District Test Coordinators. The three workshop handouts developed by the Office of Research included:

1. "District Test Coordinator's Packet";
2. "Teacher's Packet, Grades 3 and 6"; and
3. "Teacher's Packet, Grade 11".

All handouts included student participation information; a time line and check list for the 1977-78 Statewide Testing Program; classroom test administration procedures; coding instructions and editing procedures for answer sheets, test booklets, CTBS/S Group Information Sheets, and Department Batch Sheets; and a listing of score reports provided as part of the program. The District Test Coordinator's Packet additionally included information on packaging of test booklets and answer sheets, shipping of test booklets, and additional scoring services that the district could purchase. The videotape, "Testing, 1, 2, 3", was revised and scheduled so that districts could use the videotape as a supplement to their local workshops for classroom test administrators.

Districts were given a choice of administering the CTBS/S to their 3rd, 6th, and 11th grade students on either March 28, 29, and 30, 1978, or April 4, 5, and 6, 1978. The actual administration of the tests to the students was conducted by classroom teachers, using the administration procedures outlined in the CTBS/S Examiner's Manuals for Levels C, 1, 2, and 4.

Immediately after the administration of the CTBS/S, the District Test Coordinators collected the consumable test booklets and answer sheets from the various schools within the district. The deadline for the shipment of Grade 3 test booklets and Grade 6 answer sheets to CTB/McGraw-Hill in Monterey, California, was April 12, 1978. The same deadline applied to the shipment of the Grade 11 answer sheets to the State Department of Education. CTB/McGraw-Hill subcontracted with a trucking firm to pick up the Grades 3 and 6 test booklets and answer sheets, and the Data Center arranged for the pick-up of Grade 11 answer sheets.

The Posttest Workshops for District Test Coordinators were in April, prior to district receipt of the score reports. Four regional Posttest Workshops were conducted for District Test Coordinators. The specific dates of these four workshops were April 18, 20, 25, and 27, 1978. Four handouts were developed to parallel each of the four workshop sessions offered:

1. "Definitions and Conversions of Test Scores",
2. "Reading Score Reports",
3. "Utilization of Test Results for Instructional Purposes", and
4. "Utilization of Test Results for Administrative Purposes".

Limitations on Interpretation of Test Results

The operation of the 1977-78 Statewide Testing Program was consistent with the 1976-77 Statewide Testing Program. Therefore, comparisons of student performances for the two years are possible. The 1976-77 Statewide Testing Program embodied the two major changes that were also reflected in the 1977-78 Statewide Testing Program. These two changes, which could have possibly affected the test results, were the move from fall testing in 1975 to spring testing in 1977 and the implementation of functional-level testing in Grades 3 and 6.

For all grades tested, the change from fall to spring testing affects comparisons of the performances of South Carolina students in the Years 1976-77 and 1977-78 with the performances of South Carolina students in the Years 1973-74, 1974-75, and 1975-76. In addition to affecting the comparisons of last year's data and this year's test data with previous years' test data, the move to functional-level testing in Grades 3 and 6 resulted in problems associated with comparing data for the various subtests on the two levels used in each grade. Therefore, although both changes tend to provide a more accurate picture of the performance of South Carolina students, both changes contribute to the lack of comparability between the Spring data from 1977 and 1978 and the Fall data from 1973, 1974, and 1975.

The utilization of two different levels of the CTBS/S in Grades 3 and 6, brought about by the functional-level testing concept adopted initially in 1977, posed a data aggregation problem at the district level. Since normative data for Level C and Level 1 (the two functional-level tests) did not exist for Grades 3 and 6, respectively,

a special procedure had to be used in order to combine the data for Levels C and 1 at the 3rd grade level and Levels 1 and 2 at the 6th grade level. Scale scores, which are derived from raw scores, provide a means by which test results on Level C can be combined with those on Level 1 and test results on Level 1 can be combined with those on Level 2. This procedure, however, could only be applied to those subtests which were equivalent across levels in terms of content and thinking process areas.

At the 6th grade level, all subtests of Levels 1 and 2 were comparable. The subtests of Level 1 were measuring the same content and process areas as Level 2, only at a less difficult level. Thus, there were no problems in using the conversion procedure for combining the 6th grade Level 1 and Level 2 data.

At the 3rd grade level, all subtests for Levels C and 1 were not comparable, that is, the content and process areas measured on the two levels were not perfectly matched. The compatibility between the Reading Comprehension Subtests for these two levels was not sufficient to warrant combining the data for these subtests in the 3rd grade. The same was also true of the Mathematics Concepts and Applications Subtests of Levels C and 1. Nevertheless, Reading Total and Mathematics Total were considered to be equivalent between the two levels in that the large number of items contained in these two subtests were assumed to provide equivalent measures of "reading achievement" and "mathematics achievement". Since Level C does not include a Reference Skills Subtest, combined Levels C and Level 1 test results are not available for this subtest.

Thus, in addition to the change in administration dates and the functional-level data aggregation problems, the lack of comparability of subtests in Grade 3 also contributed to the problems involved in making comparisons between the 1976-77 and 1977-78 test data and the previous years' test data.

CHAPTER III

INTERPRETATION OF THE TEST SCORES AND SCORE REPORTS

Introduction

This chapter is designed to facilitate the interpretation of the test scores and score reports that are provided to districts as part of the Statewide Testing Program. The first section of this chapter, "Norm-Referenced Test Interpretation", describes how a norm-referenced test is constructed and how the results from a norm-referenced test can aid in the educational decision-making process. The second section, "Definitions of the Scores", provides descriptions of test scores such as raw scores, scale scores, percentiles, and normal curve equivalents and discusses the strengths and weaknesses of these test scores. A discussion of the score reports that are provided as part of the Statewide Testing Program is included in the third section, "Description of Score Reports". Also provided in the third section is information relative to the types of test scores provided on each score report.

Norm-Referenced Test Interpretation

When individual student test results are interpreted with respect to group test results, the test interpretation is called norm-referenced. The group might consist of all students in a class; all students in a given school, district, or state; or all students in some national group. Norm-referenced tests are primarily used for making comparisons among groups of students. As an example, the performance of students in South Carolina can be compared with the performance of students in the nation.

A norm-referenced achievement test is primarily designed to rank

students on achievement from low to high so that the achievement of individual students or groups of students can be interpreted with respect to the achievement of some reference group, known as the norm group. For example, suppose Sally Student received a score of 8 items correct on a 10-item test; and Johnny Student received a score of 3 items correct on a 10-item test. The class's average score was 5 items correct. A norm-referenced interpretation would be: Sally's test performance was above average relative to the class's average performance, and Johnny's test performance was below average relative to the class's average performance. In this example, the norm group would be the class.

Since norm-referenced tests are primarily designed to rank students on achievement from low to high, these tests are constructed so that individual differences in student achievement are maximized. The items selected for inclusion on norm-referenced tests vary in difficulty in order to obtain a wide range of scores. The majority of the items are of medium difficulty, and the remaining items are either easier or more difficult. Items which all students are likely to answer correctly and items which all students are likely to answer incorrectly are not included on norm-referenced tests.

By virtue of the fact that a norm-referenced test is designed to maximize individual differences in student achievement, the test results can be used to assist educational decision makers in answering questions such as the following:

1. How does the achievement of an individual student in a given grade compare with the achievement of other students at the same grade level in his class, in the school, in the district, in the state, or in the nation?;

2. How does the achievement of a class compare with the achievement of other classes in the school, with the achievement of the school as a whole, with the achievement of the district as a whole, with the achievement of the state as a whole, or with the achievement of the nation as a whole?;

3. How does the achievement of a school in a given grade compare with the achievement of other schools within the district, with the achievement of the district as a whole, with the achievement of the state as a whole, or with the achievement of the nation as a whole?;

4. How does the achievement of the district in a given grade compare with the achievement of the state as a whole or the achievement of the nation as a whole?; and

5. Of the content and skill areas included on the norm-referenced test, in which content or skill area is achievement weakest (strongest) relative to some norm group?.

In using norm-referenced test results to answer questions similar to these, the educational decision maker must be knowledgeable not only about the characteristics of the comparison group but also about the extent to which the test content and skill areas measure the curriculum under consideration.

Definitions of Test Scores

The results of the Statewide Testing Program are reported in raw scores, scale scores, percentiles, national quarters, stanines, grade equivalents, and normal curve equivalents. These test scores serve a variety of different purposes with respect to the interpretation of the CTBS/S results. Two measures of central tendency, the mean and the median, are often calculated on the basis of the different norm scores to describe test data. Therefore, a discussion of the mean and the median as measures of central tendency precedes the discussion of the various test scores.

Measures of Central Tendency

A convenient way of summarizing data is to find a single score that can represent a whole set of test scores. A desirable characteristic of

such a score is that the score reflects the point around which the majority of the test scores tend to cluster, referred to as the point of central tendency. There are two main measures of central tendency, the mean and median.

The mean is typically referred to as the "average" score and is computed by adding a list of scores, then dividing by the total number of scores. For example, if the seven students in Ms. Central's class score 1, 1, 1, 2, 3, 10, and 10 on a 10-item test, then the mean class score is found by adding the seven scores (1 + 1 + 1 + 2 + 3 + 10 + 10 = 28) and dividing this sum (28) by the number of students who took the test (28/7=4). Therefore, the mean score for Ms. Central's class is 4.

The median is another measure of central tendency that is frequently used. The median is determined by ranking the test scores from low to high and finding the score that is in the middle. In other words, the median is the midpoint in a distribution of scores below which half (50%) of the scores lie. Thus, the other half (50%) of the scores will be above this point. Again, look at Ms. Central's class scores of 1, 1, 1, 2, 3, 10, and 10 on the 10-item test. Which of these scores is the middle score? The middle score or midpoint is the fourth score from the top or bottom which is 2. Therefore, the median of the test scores for Ms. Central's class is 2.

Since both the mean and median are measures of central tendency for a group of scores, the question arises, "Is the mean or median a more accurate indicator of what a group of scores looks like?". Again, look at the students' scores in Ms. Central's class which were 1, 1, 1, 2, 3, 10, and 10. Does the mean of 4 or the median of 2 seem to represent more accurately the way in which the class as a whole scored? In this example, the median of 2 is more representative of the scores in Ms. Central's class than the mean of 4. In general, if scores are bunched at the top or bottom of the range of scores, the median is more representative of the group of scores.

Note that when comparisons between classes, districts, or states are being made, either all means or all medians should be used for the comparisons. For example, a mean Battery Total score for one school should

not be compared to a median Battery Total score for another school.

Raw Score

The raw score is the number of items on a test that the student answered correctly. Thus, if Sally Student obtained a raw score of 10, then Sally answered 10 items on the test correctly.

All other types of scores used in testing are derived from the raw score. The major weakness of this score is that without additional information this score is impossible to interpret. For example, having a raw score of 10 is relatively meaningless unless the total number of items on the test is known.

Scale Score

A scale score is a score which ranges from 0 - 999, depending upon the subtest and level of the test being used. This score has been statistically derived from the distribution of raw scores.

A scale score is primarily used to observe a student's or group of students' performance on a particular subtest over time. In other words, Sally's Reading Comprehension scale score in 1973 can be compared with her Reading Comprehension scale score in 1977. However, a scale score should not be used to compare a student's performance on different subtests. For example, Sally's Reading Comprehension scale score should not be compared to her Reading Vocabulary scale score.

Although the mathematical properties of the scale score make this score especially suitable for statistical calculations, a scale score must be converted to another score to be meaningful and of practical use.

Percentile

The point in a distribution below which a given percentage of scores fall is called a percentile (%ile). Suppose Sally Student scores

at the 63rd percentile (63%ile) on a test. The interpretation of this score would be: 63 percent of the scores in the norm group were below Sally's score, while 37 percent of the scores in the norm group were above Sally's score. In other words, Sally scored higher than 63 percent of the students in the norm group and lower than 37 percent of the students in the norm group.

The distinction between a local percentile and a national percentile is based on the norm group. If the norm group is a local group such as a class, school, district, or state at a given grade level, then the student's percentile refers to the student's rank among peers in the local group at that grade level. If the norm group is a national group, then the student's percentile refers to the student's rank among peers in the national group at that grade level. Suppose Sally Student has a school local percentile of 75 and a national percentile of 63. Then, Sally scored higher than 75 percent of her peers in her school and 63 percent of her peers in the nation. Note that Sally's national percentile varied from the local percentile because her score was compared to two separate norm groups.

Percentiles are useful in making comparisons between different groups of students on the same subtest or in making comparisons for the same group of students across various subtests. For a given grade, the median national percentile in Reading Vocabulary for a class can be compared to the median national percentile in Reading Vocabulary for the school to determine the class's performance relative to the school's. Another approach would be to compare the median national percentiles for Reading Total, Language Total, and Mathematics Total to determine which of these areas seems to be weak relative to the other areas.

The major weakness of the percentile is that this score may fluctuate as a function of the raw score. For example, raw scores of 32 and 33 for Reading Comprehension, CTBS/S, Level 1, Grade 3.6 to 3.9, convert to national percentiles of 62 and 64, respectively; whereas, raw scores of 36 and 37 convert to national percentiles of 73 and 77, respectively. An increase in one raw score point in one place on the scale results in an increase of two national percentiles and in another place on the

scale results in an increase of four national percentiles. Thus, on a given subtest, a student can increase his ranking by several percentile points by guessing one item correctly. For this reason, the conversion tables located in the CTBS/S Examiner's Manual should be consulted when making fine discriminations in performance between individual students or between groups of students.

National Quarters

Frequently, the range of percentile points is divided into four subgroups, referred to as "quarters of the national distribution". These quarters are referred to as the lower quarter (1st to 25th national percentile), the lower middle quarter (26th to 50th national percentile), the upper middle quarter (51st to 75th national percentile), and the upper quarter (76th to 99th national percentile). The percentage of students that have national percentiles falling into each of these four quarters is useful in making comparisons between local and national distributions. In the national distribution, 25 percent of the students' scores falls into each of the four quarters. Therefore, if a local group has 35 percent of its scores falling into the lower quarter of the national distribution, this indicates that the local group's performance is below the national norm for the lower quarter. Likewise, if a local group has 15 percent of its scores falling into the lower quarter, then the local group's performance is considered to be above the national norm for that quarter.

When 25 percent of the students in a given group falls in each of the four quarters of the national distribution, a strong tendency exists for educators to accept this performance as an end in itself. Consider the possiblity that the percentage of South Carolina students falling into each quarter is 25 percent. In other words, South Carolina students would look similar to the students in the national sample; nevertheless, educators should still be interested in implementing programs to improve student performance so that the percentages of students falling into the lower quarters would be reduced and the percentages of

students falling into the upper quarters would be increased.

Stanines

The stanine derived from a "standard nine" score consists of a nine point scale based on percentiles. The scores range from a low value of 1 to a high value of 9, with 5 as an average value. Each stanine value represents a group of percentiles. The ranges of the percentiles associated with each stanine score are presented in Figure 3.1.

Because of this score's simple structure, this score is especially useful in the interpretation of individual student data. As a rule of thumb, if a stanine score is at least two stanines above the average stanine score of 5 in a particular area (Reading, Language, Mathematics, etc.), this score is an indication of a strength in that area relative to the norm group. On the other hand, if a stanine score is at least two stanines below the average stanine score of 5 in a particular area, this score is an indication of a weakness in that area relative to the norm group. For example, if Sally Student's stanine score is 8 in Mathematics Computation, her performance is considerably above the average of the comparison group since her percentile would fall between 90 and 95. Furthermore, her stanine score of 8 also indicates that she is strong in Mathematics Computation relative to the comparison group since her score of 8 is three stanines above the average stanine score of 5. Suppose, however, that her stanine score in Mathematics Computation is 2. This score of 2 indicates that her performance is considerably below average since her percentile would fall between 5 and 10. Sally's score of 2 also means that she is weak in Mathematics Computation relative to the comparison group since her score of 2 is three stanines below the average stanine score of 5.

Since a stanine score is a range of percentiles, this score is a very stable indicator of achievement. Inherent in this score is the belief that scores should be interpreted within an interval of confidence. Since many factors such as test anxiety, the test situation, and guessing can affect a student's score on a test, a score can fluctuate from

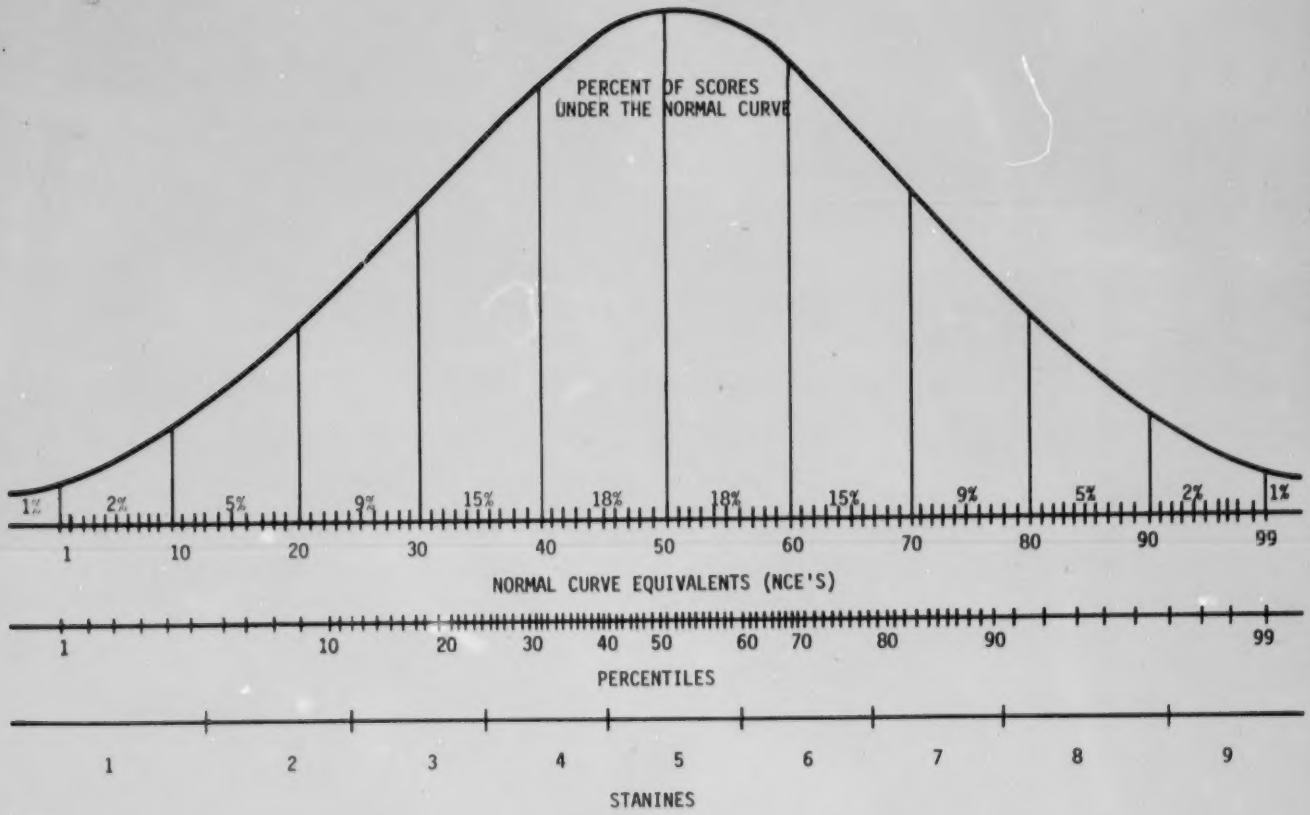


Figure 3.1

Scales of National Percentiles, Stanines,
and Normal Curve Equivalents

one testing time to another. Therefore, interpreting a student's score within a confidence band allows for this fluctuation and is, therefore, more desirable than relying solely on the student's test score as a performance indicator. For example, if Sally Student's stanine score is 4, her teacher can be fairly confident that Sally's performance is slightly below average.

Stanines are based on either local percentiles or national percentiles. A stanine score based on national percentiles is referred to as a "national stanine"; whereas, a stanine score based on local percentiles is referred to as a "local stanine".

Grade Equivalent

A grade equivalent is expressed in two numbers: the first indicates the year, and the second indicates the month. Sally's grade equivalent score of 3.7 indicates that her achievement was similar to the median achievement of 3rd grade students in the national sample in April (7th month).

Interpreting the grade equivalent as grade performance is incorrect. If Sally obtains a score of 5.7 in Mathematics Total in the Spring in Grade 3 on Level 1 of the CTBS/S, the result should be interpreted as Sally is doing exceptionally well compared to other 3rd graders. Sally's score does not mean that Sally can currently do 5th grade mathematics because Sally was administered a test that was primarily designed for 3rd graders. In other words, even though Level 1 was constructed for use in Grades 2.5 to 4.9, Sally's test results were compared with the test results of 3rd grade students in the national sample. Since the grade equivalent is subject to widespread misinterpretation, the meaning of a grade equivalent should be carefully explained to individuals who use the test data, for example, principals, teachers, and parents.

This score is useful in making comparisons between different groups of students on the same subtest. For example, the median grade equivalent in Reading Vocabulary for a class can be compared to the median

grade equivalent in Reading Vocabulary for all students in the same school in the particular grade. However, the median grade equivalent for Reading Vocabulary should not be compared with the median grade equivalent for Reading Comprehension.

The value of the grade equivalent, like that of the national percentile, fluctuates considerably as a function of the raw score. An increase of one raw score point could mean an increase of as little as 0.0 grade equivalent or as much as 1.6 grade equivalents depending on the subtest under consideration. This relationship between the raw score and the grade equivalent should be considered in the interpretation of grade equivalents.

Normal Curve Equivalents

The normal curve equivalent (NCE) score was developed by the Research Measurement Corporation (RMC) primarily to standardize test data for the evaluation of Title I programs. This score, which ranges in value from 1 to 99, combines features of the national percentile and the t-score and follows a normal distribution; that is, the distribution follows the traditional bell-shaped curve. This score was constructed to have a mean of 50 and a standard deviation of 21.06 regardless of the time of testing and the grade level tested. (The standard deviation is a statistic which measures the amount of variation in a set of scores.) These values for the mean and standard deviation were chosen so that the minimum NCE score of 1 would correspond to the minimum percentile of 1, the mean NCE score of 50 would correspond to the 50th percentile, and the maximum NCE score of 99 would correspond to the maximum percentile of 99. However, normal curve equivalents do not match percentiles at any other points on the distribution scale.

Additionally, normal curve equivalents have the added feature of being equal interval scores. For example, suppose Sally and Billy are both 3rd grade students who take the CTBS/S. Their test results indicate that Billy's normal curve equivalent score is 40 and Sally's normal curve equivalent is 30. Since normal curve equivalents below 50 signal

below average achievement levels or below grade level performance, Billy and Sally both scored below average for their grade level on the test. When comparing Billy's performance with Sally's performance, Sally's normal curve equivalent score of 30 is twice as far below average for the 3rd grade as Billy's normal curve equivalent score of 40. However, Billy's and Sally's normal curve equivalent scores should not be interpreted to mean that Billy knows twice as much as Sally knows nor that Billy's performance was at the 2nd grade level and Sally's performance was at the 1st grade level.

Because normal curve equivalents are equal interval scores, normal curve equivalents are useful for aggregating and averaging data and for making comparisons both within and across skill areas. Normal curve equivalents by virtue of their construction have several distinct advantages over both national percentiles and scale scores.

The primary advantage of using NCE's over national percentiles in making comparisons across skill areas stems from the fact that NCE's measure achievement on an interval scale; whereas, national percentiles measure achievement on an ordinal scale. NCE's are considered to be interval measures because the differences between any two consecutive scores on the NCE scale are of equal size regardless of the location of the two scores on the scale. Therefore, a gain of five NCE's represents exactly the same amount of performance improvement for students at the lower end of the achievement distribution as for students scoring in the middle or extreme upper end of the achievement distribution. National percentiles, however, are measured on an ordinal scale. An ordinal scale is one on which students are only ranked in terms of their performance and, therefore, is not an equal interval scale. The differences between any two consecutive scores on the national percentile scale are not of equal size. The sizes of these differences depend on the location of the two consecutive national percentiles scores along the scale. Differences occurring near the middle of the percentile scale are usually much smaller than differences occurring at the extremes of the scale.

The primary advantage which the NCE has over the scale score is that the NCE scale is the same across skill areas. As mentioned previously, the NCE was developed on an equal interval scale that ranges from 1 to 99 for each test or subtest. Although the scale score is an equal interval measure, the distribution of the scale scores varies depending upon the test or subtest. Since the scale of the NCE does not vary depending upon the test or subtest, the NCE can be used for making comparisons across tests and subtests.

Description of Score Reports

The test scores which are defined in the previous section are provided to districts in five major types of CTBS/S score reports: the Individual Test Record and Home Report; the Class Record Sheet; the Right Response Summary and Item Analysis; the Frequency Distribution; and the Evaluator's Summary. Table 3.1 presents an overview of the various types of test scores that are available on the CTBS/S score reports.

Individual Test Record

The Individual Test Record is designed to provide information about individual student performance. The report is divided into three parts and is printed in triplicate.

The first part of the report provides raw scores, scale scores, national percentiles, and national stanines for all of the subtest and test totals. (See Table 3.1.) Another part provides a graphic representation of national percentiles for each subtest which provides an overview of the students' relative strengths and weaknesses. The third part of the report displays the student's response to each test item. Pluses, minuses, and blanks are used to indicate correct responses, incorrect responses, and omitted responses, respectively. To aid in interpretation, the item responses are categorized by the content areas and by the thinking process areas described in Chapter II,

"Instrumentation".

A carbon copy, referred to as the Individual Test Record Home Report, is designed for parents. The lower part of this copy contains brief descriptions of the different scores on the report.

Class Record Sheet

The Class Record Sheet is designed for teacher use at the classroom level. Individual student names are arranged in alphabetical order for easy reference. The chronological age of each student is listed. The test scores given for each of the subtests and test totals on this report are scale scores, national percentiles, national stanines, and grade equivalents. (See Table 3.1.) The last entry on this report presents class means for each of these test scores.

Right Response Summary

The Right Response Summary provides information on the performance of a group of students in a given grade (by school or by district) on each of the items on the CTBS/S. When two levels of a test are administered in one district, separate Right Response Summaries are provided for each level of the test at the district level.

The items are categorized by content areas and by thinking process areas. For each item, the percentage of students omitting the item, the percentage of students responding correctly to the item, and the percentage of students responding incorrectly to the item are given. For each group of items, the average percentage of students omitting each group of items, the average percentage of students responding correctly to each group of items, and the average percentage of students responding incorrectly to each group of items are also given. Corresponding percentages for the individual items and for the item groups are given for the national sample for three different norming dates. This information makes possible a more specific comparison between local student achievement and national student achievement on these same items

Table 3.1

Test Scores Included on Each
CTBS/S Score Report

Score Report	Scores[a]										
	RS	SS	NP	LP	NQ	NS	GE	NCE	%R	%W	%O
Individual Test Record with Home Report	X	X	X			X					
Class Record Sheet		X	X			X	X				
Right Response Summary and Item Analysis									X	X	X
Frequency Distribution		X		X	X						
Evaluator's Summary		X	X		X		X	X			

[a]RS = Raw Score
SS = Scale Score
NP = National Percentile
LP = Local Percentile
NQ = National Quarters
NS = National Stanine
GE = Grade Equivalent
NCE = Normal Curve Equivalent
%R = Percent of Items Answered Right
%W = Percent of Items Answered Wrong
%O = Percent of Items Omitted

and item groups with respect to content areas and thinking process areas.

Frequency Distribution

The Frequency Distribution provides summary information at the school and district levels for each subtest and test total. When two levels of a test are administered in one grade within a district, the frequency distribution for the district is based on data that have been combined for both levels of the test.

The first two pages of this report provide counts of individual scores falling in specified scale scores ranges and the local percentile points of the corresponding scale score range. If the score report is a School Frequency Distribution, the local percentiles are school local percentiles. However, if the score report is a District Frequency Distribution, the local percentiles are district local percentiles.

The third page of the Frequency Distribution provides the following information for each subtest and test total: the number of students; the single low and high scores; scale scores corresponding to the 10th, 25th, 50th, 75th, and 90th local percentiles; and several statistics which include the scale score sum, sums of squares, standard deviation, and mean. The final entry provides the total number of students taking any part of any subtest.

The fourth page of the Frequency Distribution provides a breakdown of the numbers and percentages of local students falling into the four national quarters. The lowest national quarter is also broken down into five equal percentile ranges (1st to 5th, 6th to 10th, 11th to 15th, 16th to 20th, and 21st to 25th) for further inspection of the State scores.

Evaluator's Summary

The Evaluator's Summary is a summary report designed to provide a concise description of the test results at the district level for each

of the subtests and test totals. The scores included in this report for each school in the district, as well as for the district as a whole, are scale scores, national percentiles, national quarters, grade equivalents, and normal curve equivalents.

CHAPTER IV

COMPARISONS OF SPRING 1978 PERFORMANCE IN SOUTH CAROLINA TO PERFORMANCE IN THE NATION AND TO SPRING 1977 PERFORMANCE IN SOUTH CAROLINA

Introduction

The purpose of this chapter is to present the results from the 1978 Spring testing by providing several comparisons of South Carolina student performance. Each comparison is designed to address different questions in order to fully utilize the information obtained from the testing program. Tables and graphs are presented to facilitate the interpretation of the comparisons.

The first section, "Comparison of 1978 Performance in South Carolina to Performance in the Nation", focuses on the performance of 3rd, 6th, and 11th grade students in South Carolina as compared to the performance of 3rd, 6th, and 11th grade students in the nation. The comparisons in the first section are designed to answer questions such as "How does the performance of 3rd grade students in South Carolina compare with the performance of 3rd grade students in the nation on Reading Total? Mathematics Total?", etc..

The second section, "Comparison of Spring 1978 Performance in South Carolina to Spring 1977 Performance in South Carolina", compares the Spring 1978 results to the Spring 1977 results for students in South Carolina. This section provides answers to questions such as "How does the Spring 1978 performance of 3rd grade students in South Carolina compare with the Spring 1977 performance of 3rd grade students in South Carolina on Reading Total? Mathematics Total?", etc..

Comparison of 1978 Performance in South Carolina to Performance in the Nation

For each of the three grade levels tested in the 1978 South Carolina Statewide Testing Program, comparisons between the performance of students in South Carolina and the performance of students in the nation can be made. In this section, South Carolina Spring 1978 test scores

for the skill areas at each grade level are compared to national test scores, using median national percentiles. Following each comparison to the national average, a discussion of the relative strengths and weaknesses of the different subject areas relative to the national performance is presented. The median national percentiles for the tests, as well as for the subtests, are presented in Appendix A. Additionally, median grade equivalents for the tests and subtests are presented in Appendix A.

1978 Student Performance in Grade 3

In Table 4.1, the Spring 1978 median national percentiles for 3rd graders in South Carolina are presented.

Table 4.1

Median National Percentiles for South Carolina

Grade 3

Skill Area	1978 State Median	National Median
Reading Total	44.7	50.0
Language Total	46.1	50.0
Mathematics Total	43.8	50.0
Battery Total	45.3	50.0
Reference Skills[a]	NA	NA
Science	46.0	50.0
Social Studies	46.1	50.0

[a]Since Level C of the CTBS/S does not contain a Reference Skills Test, combined data are not available for Reference Skills.

The median or middle score for the national group is the 50th national percentile. Thus, the median national percentile reported for

Reading Total, for example, indicates that the middle score for South Carolina 3rd grade students was similar to the 45th national percentile score. If the performance of South Carolina 3rd grade students had been at or above the national average in Reading Total, South Carolina 3rd graders would have scored at or above the 50th national percentile.

As indicated in Table 4.1, the 1978 performance of South Carolina 3rd grade students was slightly below the national median for each of the five skill areas (excluding Reference Skills) and for the Battery Total. The Spring 1978 national percentiles indicate that Language Total (46.1), Social Studies (46.1), and Science (46.0) represented the highest areas of performance, followed closely by Battery Total (45.3), Reading Total (44.7), and Mathematics Total (43.8). The area of lowest performance for South Carolina 3rd grade students was Mathematics.

1978 Student Performance in Grade 6

The median national percentiles for South Carolina Grade 6 students are presented in Table 4.2.

Table 4.2

Median National Percentiles for South Carolina

Grade 6

Skill Area	1978 State Median	National Median
Reading Total	41.4	50.0
Language Total	44.0	50.0
Mathematics Total	38.9	50.0
Battery Total	39.0	50.0
Reference Skills	49.0	50.0
Science	46.2	50.0
Social Studies	42.2	50.0

Table 4.2 indicates that the Spring 1978 performance of South Carolina 6th grade students was below the national median in each of the six skill areas and Battery Total. Reference Skills with a median national percentile of 49.0 was the skill area of highest performance for South Carolina 6th graders. The median national percentile of 49.0 for Reference Skills closely approximated the median performance of the national group. In the other five skill areas and Battery Total, the median performance in order of highest to lowest performance, was Science (46.2), Language Total (44.0), Social Studies (42.2), Reading Total (41.4), Battery Total (39.0), and Mathematics Total (38.9). As in the 3rd grade, Mathematics with a median national percentile of 38.9 was the weakest skill area.

1978 Student Performance in Grade 11

The median national percentiles for South Carolina 11th graders are presented in Table 4.3.

Table 4.3

Median National Percentiles for South Carolina

Grade 11

Skill Area	1978 State Median	National Median
Reading Total	34.8	50.0
Language Total	38.9	50.0
Mathematics Total	35.6	50.0
Battery Total	32.7	50.0
Reference Skills	41.2	50.0
Science	39.4	50.0
Social Studies	43.9	50.0

As indicated in Table 4.3, South Carolina 11th grade students scored below the median national percentile in all skill areas. Relative to the nation, the Spring 1978 performance for South Carolina 11th graders was strongest in the skill areas of Social Studies and Reference Skills with median national percentiles of 43.9 and 41.2, respectively. The median national percentile for Science was 39.4, and the median national percentile for Language Total was 38.9. Mathematics Total and Reading Total with median national percentiles of 35.6 and 34.8, respectively, were the weakest areas of performance.

One apparent but explainable inconsistency occurred in the 11th grade data. The State's median national percentile for Battery Total of 32.7 was lower than any of its three components, Reading Total (34.8), Language Total (38.9), and Mathematics Total (35.6). The reason for this occurrence is that the Battery Total score is not an average of the scores of its component subtests. Rather, the items for the three areas of Reading, Language, and Mathematics are pooled together to form a new test, the Battery Total. This composite test, Battery Total, is then treated as if it were a new and different test in that percentiles and other derived scores are based on this new pool of items. Additionally, only students who complete the Reading, Language, and Mathematics Tests receive a Battery Total score. Therefore, a student who only took the Mathematics Test may have a Mathematics Total score; but this score may not be included as part of the Battery Total because the student may not have completed the Reading or Language Tests. Since all students in South Carolina usually do not complete all three tests included in the Battery Total, the number of cases for the State's Battery Total is usually smaller than the number of cases for any of the three component tests. For these reasons, the median Battery Total score can be slightly higher or lower than the corresponding scores for Reading Total, Language Total, and Mathematics Total.

Comparison of Spring 1978 Performance in South Carolina to Spring 1977 Performance in South Carolina

For each grade level, the discussions focus on performance comparisons between the Spring 1978 results and the Spring 1977 results for the

CTBS/S skill areas and Battery Total. Performance comparisons are made, using median national percentiles, as well as the percentages of South Carolina students scoring above the national median.

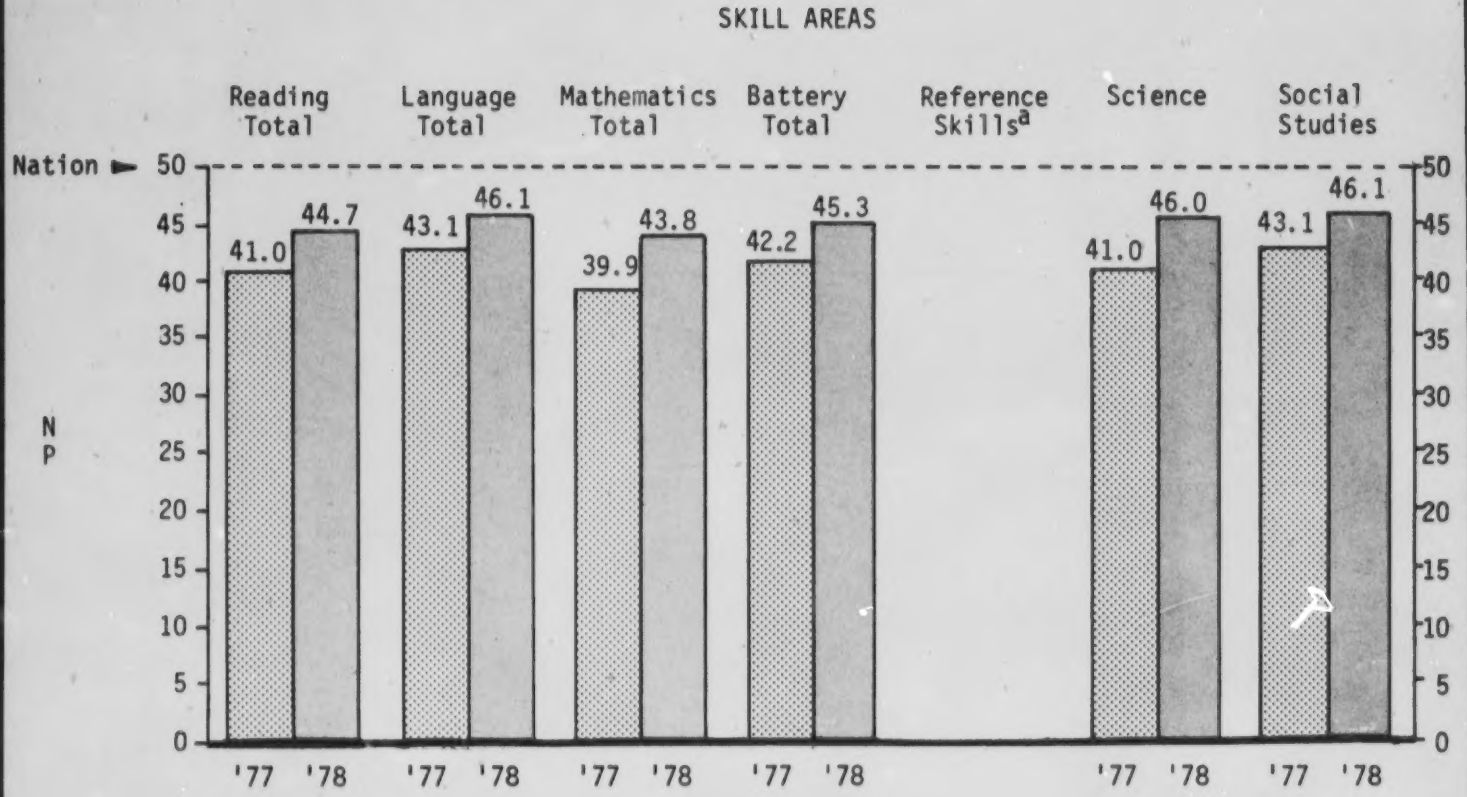
Comparison of 1978 and 1977 Performance for Grade 3

For both Spring 1978 and Spring 1977, the median national percentiles for 3rd graders in South Carolina and the percentages of South Carolina 3rd graders scoring above the 50th national percentile are discussed.

Figure 4.1 clearly shows that there was an increase in median performance of at least 3 national percentile points in all skill areas from Spring 1977 to Spring 1978. The largest increase in achievement occurred for the Science skill area in which the median national percentile score increased 5 national percentile points. Reading Total and Mathematics Total scores also improved substantially, having increases of almost 4 percentile points each. The smallest increases in achievement were in Language Total, Battery Total, and Social Studies which had increases of approximately 3 national percentile points each.

For Spring 1977, the median performances on the skill areas from highest to lowest were Language Total (43.1), Social Studies (43.1), Battery Total (42.2), Reading Total (41.0), Science (41.0), and Mathematics Total (39.9). However, this performance ranking of the skill areas changed in 1978 for Reading, Battery Total, and Science. Science moved from fifth place in 1977 to third place in 1978. In both 1978 and 1977, Language Total and Social Studies were the areas of highest performance; and Mathematics Total was the area of lowest performance.

The percentages of South Carolina 3rd graders scoring above the national median (the 50th national percentile) are presented in Table 4.4. Percentages for a particular skill area are obtained by adding the percentages of students scoring in the two upper quarters of the national distribution (the upper middle quarter and the upper quarter). Fifty percent of the nation's 3rd graders scored above the national median.



[a]Data are not available for this subtest.

Figure 4.1

Bar Graph of South Carolina Median National Percentiles (NP's) for the CTBS/S Skill Areas and Battery Total

Grade 3

centages of students scoring in the two upper quarters of the national distribution (the upper middle quarter and the upper quarter). Fifty percent of the nation's 3rd graders scored above the national median. Therefore, if 50 percent of South Carolina 3rd graders scored above the national median, South Carolina would be performing at the national norm. If, however, more than 50 percent of South Carolina 3rd graders scored above the national median, South Carolina would be scoring above the nation.

Table 4.4

Percentages of South Carolina Students
Scoring above the 50th National Percentile (NP)

Grade 3[a]

Skill Area	% Above 50th NP for Nation	% Above 50th NP for South Carolina	
		1977	1978
Reading Total	50.0	40.9	44.4
Language Total	50.0	43.4	46.2
Mathematics Total	50.0	36.6	41.4
Battery Total	50.0	39.6	42.2
Reference Skills[b]	NA	NA	NA
Science	50.0	43.4	47.7
Social Studies	50.0	44.2	46.3

[a]n = 43,359. Total number of students completing any part of test battery.

[b]Since Level C of the CTBS/S does not contain a Reference Skills Test, combined data are not available for Reference Skills.

Although the performance of South Carolina 3rd graders was below the performance of the nation's 3rd graders in both 1977 and 1978, the percentages of 3rd graders scoring above the national average (50th national percentile) increased from Spring 1977 to Spring 1978. The largest change occurred in Mathematics Total which increased 4.8 percent, followed closely by Science which increased 4.3 percent. Other positive changes were 3.5 percent, 2.8 percent, 2.6 percent, and 2.1 percent in Reading Total, Language Total, Battery Total, and Social Studies, respectively.

Comparison of 1978 and 1977 Performance for Grade 6

For both Spring 1978 and Spring 1977, the median national percentiles for South Carolina 67th graders and the percentages of South Carolina 6th graders scoring above the 50th national percentile are presented.

As shown in Figure 4.2, the achievement of South Carolina 6th graders did improve from Spring 1977 to Spring 1978. Sixth grade performance increased at least 1 national percentile point on Reading Total, Language Total, Mathematics Total, and Battery Total. For the skill areas of Reference Skills, Science, and Social Studies, the increases in achievement were less than 1 national percentile point. The greatest improvement was evidenced in Mathematics Total with an increase of 2 national percentile points, and the least improvement was evidenced in Reference Skills with an increase of only 0.3 of a national percentile point.

For Spring 1977, the order from highest to lowest performance was Reference Skills (48.7), Science (45.6), Language Total (42.5), Social Studies (41.8), Reading Total (40.0), Battery Total (37.3), and Mathematics Total (36.9). The Spring 1977 performace ranking of the skill areas was consistent with the ranking for Spring 1978.

The percentages of South Carolina 6th graders scoring above the median national percentile of 50.0 are presented in Table 4.5.

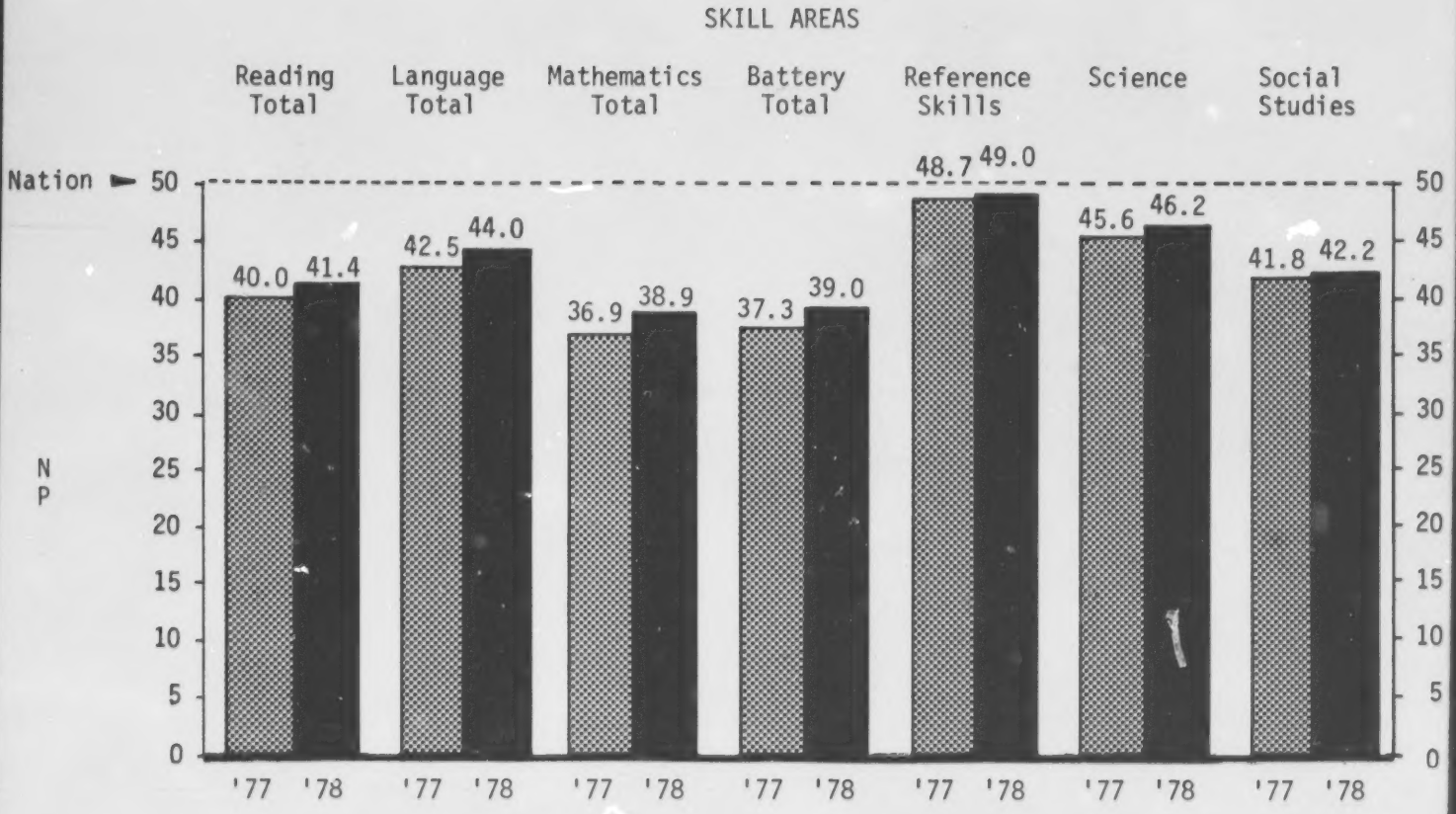


Figure 4.2

Bar Graph of South Carolina Median National Percentiles (NP's) for the CTBS/S Skill Areas and Battery Total

Grade 6

Table 4.5

Percentages of South Carolina Students
Scoring above the 50th National Percentile (NP)

Grade 6[a]

Skill Area	% Above 50th NP for Nation	% Above 50th NP for South Carolina	
		1977	1978
Reading Total	50.0	38.0	39.7
Language Total	50.0	41.8	43.0
Mathematics Total	50.0	32.4	34.8
Battery Total	50.0	36.7	38.3
Reference Skills	50.0	45.5	47.2
Science	50.0	45.9	47.9
Social Studies	50.0	40.9	41.6

[a]n = 44,216. Total number of students completing any part of test battery.

In all skill areas, with the exception of Social Studies, the percentages of South Carolina 6th graders scoring above the 50th national percentile increased by at least 1 percent from Spring 1977 to Spring 1978. Mathematics Total had the largest increase with 2.4 percent more 6th graders scoring above the national average compared to increases of 2 percent in Science, 1.7 percent in Reading Total, 1.7 percent in Reference Skills, 1.6 percent in Battery Total, 1.2 percent in Language Total, and 0.7 percent in Social Studies.

Comparison of 1978 and 1977 Performance for Grade 11

This section presents for both Spring 1978 and Spring 1977 the median national percentiles for South Carolina 11th graders and the percentages of South Carolina 11th graders scoring above the 50th national percentile.

In Figure 4.3, both the Spring 1978 and Spring 1977 median national percentiles for 11th graders in South carolina are presented. In contrast to the achievement levels of South Carolina 3rd and 6th graders, the achievement level from 1977 to 1978 for South Carolina 11th graders changed only slightly. Mathematics Total had the largest increase with 1.5 national percentile points. Smaller national percentile point increases occurred in Science with 0.2 and in Language and Social Studies with 0.1 each. Slight decreases in national percentile points of 0.2 occurred in Reading Total and in Battery Total, while Reference Skills decreased 0.1.

The rank of performances from highest to lowest on the skill areas for 1977 were Social Studies (43.8), Reference Skills (41.3), Science (39.2), Language Total (38.8), Reading Total (35.0), Mathematics Total (34.1), and Battery Total (32.9). This same performance ranking held true for the 1978 data, with the exception of Reading Total (34.8) and Mathematics Total (35.6) which reversed their rankings. Battery Total was the lowest area for both years.

The percentages of South Carolina 11th graders scoring above the median national percenitle of 50 are presented in Table 4.6. For both years, less than 50 percent of South Carolina students scored above the national median in each skill area.

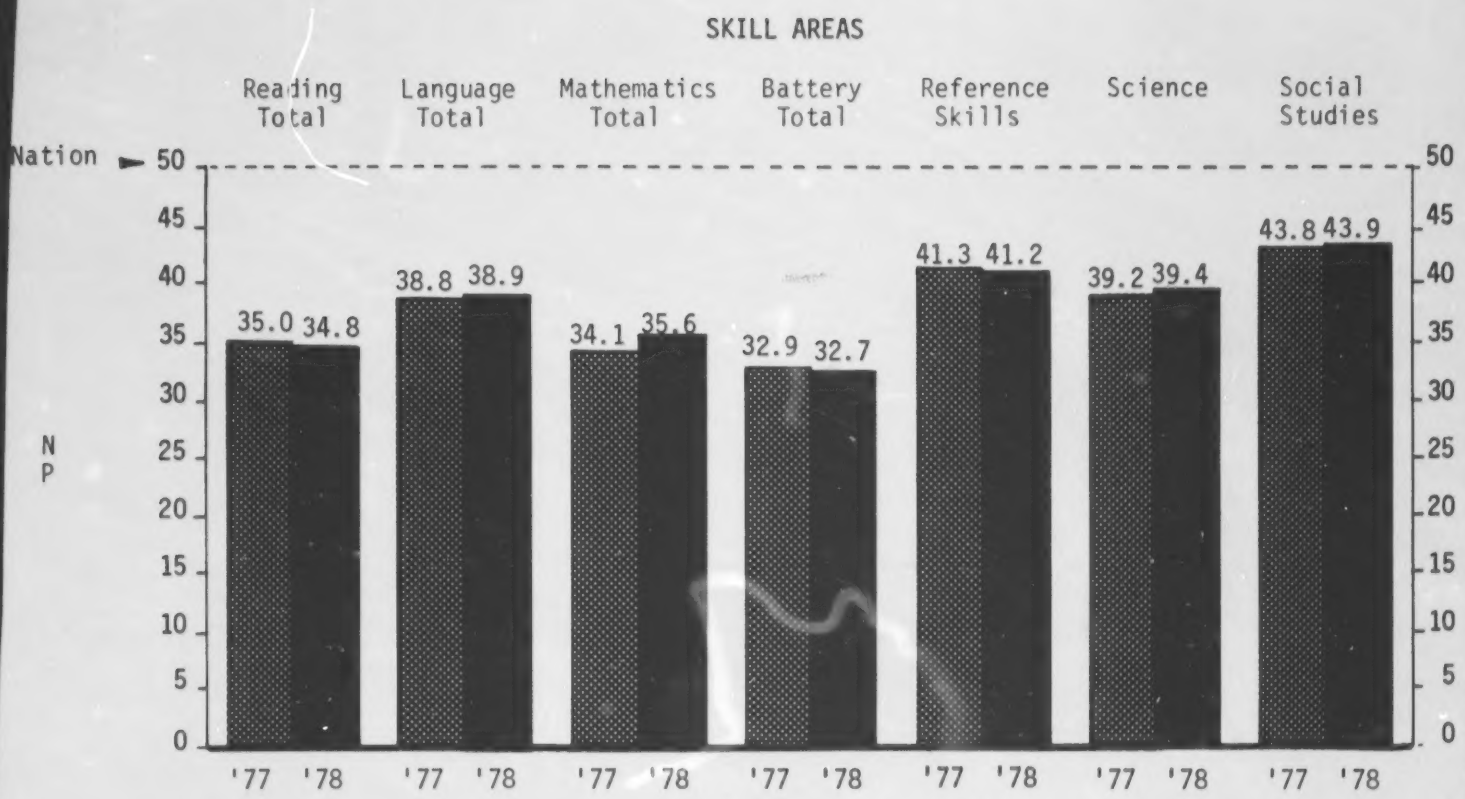


Figure 4.3

Bar Graph of South Carolina Median National Percentiles (NP's) for the CTBS/S Skill Areas and Battery Total

Grade 11

Table 4.6

Percentages of South Carolina Students
Scoring above the 50th National Percentile (NP)

Grade 11[a]

Skill Area	% Above 50th NP for Nation	% Above 50th NP for South Carolina	
		1977	1978
Reading Total	50.0	36.8	35.8
Language Total	50.0	40.5	40.1
Mathematics Total	50.0	32.6	32.4
Battery Total	50.0	33.1	32.6
Reference Skills	50.0	41.4	40.8
Science	50.0	40.3	41.3
Social Studies	50.0	41.9	41.9

[a] n = 39,183. Total number of students completing any part of test battery.

In general, when compared to the Spring 1977 percentages, the Spring 1978 percentages of South Carolina 11th graders scoring above the national median of 50 were slightly lower. The changes varied from a decrease of 1 percent in Reading Total to an increase of 1 percent in Science. There was no change in the area of Social Studies. The decreases exhibited in the other four areas were 0.4 percent for Language Total, 0.2 percent for Mathematics Total, 0.5 percent for Battery Total, and 0.6 percent for Reference Skills.

CHAPTER V

COMPARISON OF STUDENT PERFORMANCE IN SOUTH CAROLINA ACROSS AND WITHIN GRADE LEVELS

Introduction

Included in this chapter are comparisons of overall achievement, comparisons of skill area achievement, and comparisons of subskill area achievement across grade levels. Additionally, comparisons of skill area and subskill area achievement within each grade level are presented.

In the first section, "Comparison of Overall Performance Across Grades 3, 6, and 11", the overall performance of 3rd, 6th, and 11th graders is discussed by comparing the Battery Total frequency distributions for each grade.

The second section, "Comparison of Skill Area Performance Across Grades 3, 6, and 11", focuses on comparisons of student performance across skill areas and grade levels by observing the percentages of 3rd, 6th, and 11th grade students falling into each of the national quarters for each skill area.

In the third section, "Comparison of Skill Area and Subskill Area Performance Across and Within Grades 3, 6, and 11", normal curve equivalent (NCE) scores are used to compare skill area and subskill area performance across and within Grades 3, 6, and 11.

Comparison of Overall Performance Across Grades 3, 6, and 11

The comparison of the overall achievement of students across Grades 3, 6, and 11 can be accomplished by a comparison of the Battery Total frequency distributions for each of the three grade levels. Frequency polygons, which are graphic representations of frequency distributions,

are used to illustrate this comparison. Before this comparison is discussed, however, some general comments describing frequency distributions and frequency polygons are made.

A frequency distribution is an arrangement of scores that shows the number of times each score occurred for a given group of students. Score ranges or intervals of equal width are generally used for classifying the score of each student in the group. Counts of the numbers of students falling into each score interval, referred to as frequencies, are then obtained. Scale scores are the most appropriate scores to use in the development of frequency distributions since scale scores are independent of the test level and are equal interval scores. Therefore, scale scores for a particular test or subtest can be readily combined for different levels of the CTBS/S. The ability to combine data across different test levels is necessary in the case of Grades 3 and 6 in which two different levels of the CTBS/S were administered in each grade.

If comparisons of two or more frequency distributions are to be made, converting the frequencies to percents is more instructive. Because the percent base of 100 is constant, percent distributions for a given test or subtest can be directly compared and contrasted across grade levels. The conversion of frequencies to percents is accomplished by simply dividing the number of scores in a particular score interval (frequency) by the total number of scores. A visual display of a frequency distribution, known as a frequency polygon, can then be constructed by plotting each scale score range against its corresponding proportional frequency.

Since visual displays are often the most revealing, frequency polygons are used for comparing the percent distributions of the Battery Total scale scores for Grades 3, 6, and 11. These polygons are presented in Figure 5.1. (The actual data used in constructing the polygons are presented in Appendix B.) The scale scores along the horizontal axis represent the midpoints of scale score intervals. The percentage of scores falling into each scale score interval is given along the vertical axis. The solid line distribution represents the

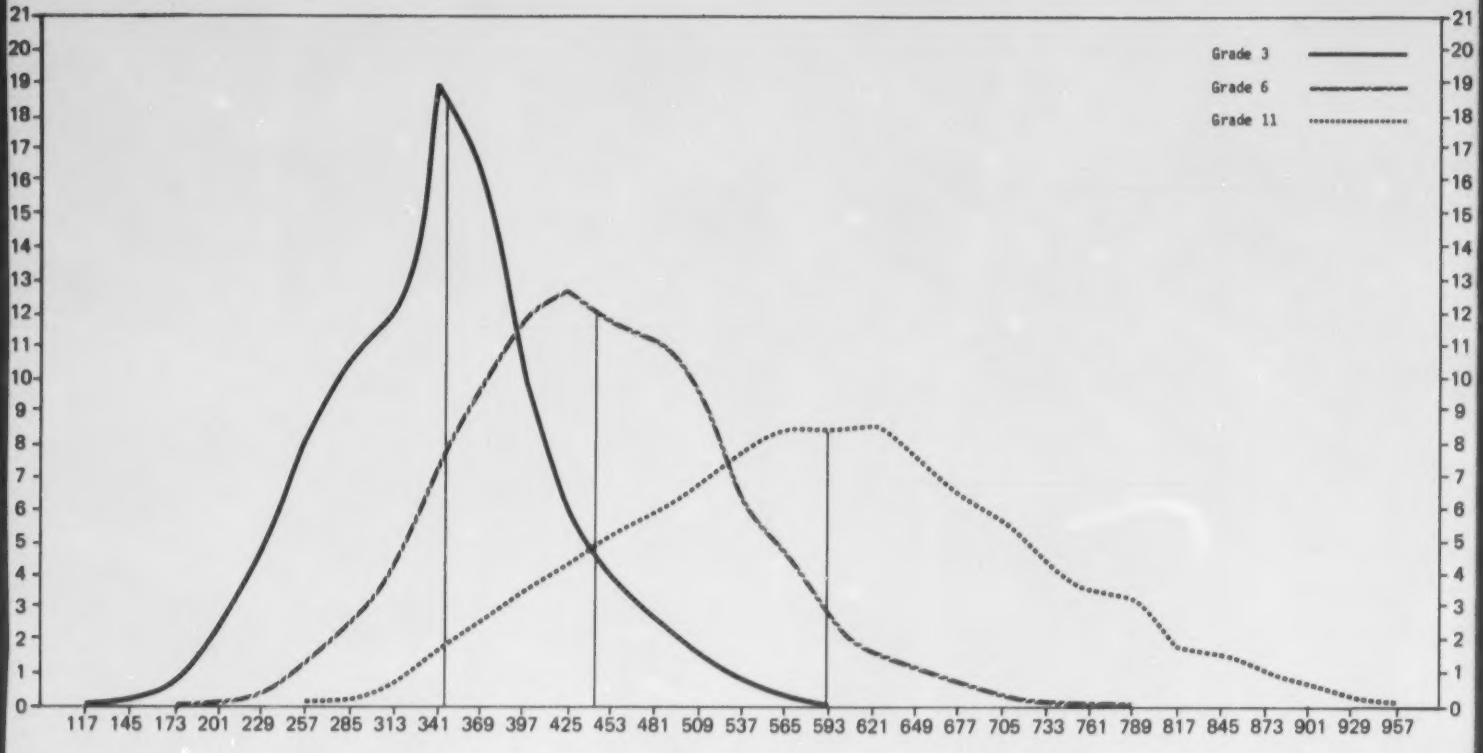


Figure 5.1

Percent Distribution of Battery Total Scale Scores
for Grades 3, 6, and 11

data for Grade 3, the spiral line distribution represents the data for Grade 6, and the dashed line distribution represents the data for Grade 11.

The median scale score for each grade level is represented in Figure 5.1 by a solid vertical line connecting each grade level curve with the horizontal axis. The median scale score for the 42,246 Grade 3 students with Battery Total scores was 345; the median scale score for the 43,043 Grade 6 students with Battery Total scores was 441; and the median scale score for the 36,707 Grade 11 students with Battery Total scores was 590. The difference in the median scale scores between Grade 3 and Grade 6 was 96 scale score points, and the difference in median scale scores between Grade 6 and Grade 11 was 149 scale score points. These differences represent an increase of about 30 scale score points per grade between Grade 3 and Grade 11.

The difference in performance across the three grade levels is more clearly illustrated by observing the shapes of the distributions in Figure 5.1. Although the three distributions are generally bell-shaped, the Grade 3 distribution is less spread out than the Grade 6 distribution; and the Grade 6 distribution is less spread out than the Grade 11 distribution. The increase of score distribution spread from Grade 3 to Grade 6 to Grade 11 perhaps suggests that the difference between low and high achievers becomes more distinct as a child progresses along the educational continuum. One possible explanation is that more learning opportunities are offered to students as the students progress to higher grades. Therefore, the higher achievers are able to take advantage of these opportunities; while the lower achievers are not. Thus, as students progress to higher grade levels, the extremes of the distribution elongate. As a result, the distribution spreads out or flattens out, causing the difference between the high and low achievers to appear greater.

In addition to the spread of the distributions, another interesting feature elucidated in Figure 5.1 is the amount of overlap of the score distributions for the three grade levels. The 3rd grade distribution indicates that approximately 9.5 percent (4,015) of the 3rd graders

scored at or above the 6th grade median scale score of 441. For the 6th grade population, approximately 13.3 percent (5,734) of the 6th grade students scored at or below the 3rd grade median scale score of 345; while about 6.2 percent (2,650) scored at or above the 11th grade median scale score of 589. The performance of the 11th graders appears to be the most variable as emphasized by the overlap of 11th grade performance with both 3rd and 6th grade performance. The 11th grade distribution illustrates that about 14.2 percent (5,229) of the 11th graders scored at or below the 6th grade median scale score of 441 and about 2.1 percent (786) of the 11th graders scored at or below the 3rd grade median scale score of 345.

In conclusion, as students progress from Grade 3 to Grade 11, achievement differences become more emphasized as illustrated by the distribution spread and the overlap in achievement across grades. The fact that the distributions are reasonably symmetric and generally bell-shaped indicates that at the State level no severe ceiling or floor effects are evidenced.

Comparison of Skill Area Performance Across Grades 3, 6, and 11

For comparing South Carolina student performance across skill areas and grade levels, the percentages of South Carolina students scoring in each quarter of the national distribution are presented for each of the skill areas and Battery Total. The national quarters are represented by four national percentile ranges, referred to as the upper quarter (76th to 100th national percentile), upper middle quarter (51st to 75th national percentile), lower middle quarter (26th to 50th national percentile), and the lower quarter (1st to 25th national percentile). If the performance of South Carolina students was the same as the performance of the national group, then 25 percent of South Carolina students would fall into each of the four national quarters. Examining the results of a particular grade for each of these quarters provides another useful way of observing the distribution of South Carolina student scores with respect to the national distribution of scores.

For ease of comparison, the data for each national quarter are presented by skill area in Figures 5.2 through 5.8, using graphs called histograms.

Battery Total Performance Across Grades

In Figure 5.2, the histograms representing the percentages of South Carolina 3rd, 6th, and 11th graders scoring in each national quarter for Battery Total are presented. The Battery Total national quarter distributions were most similar for South Carolina 3rd and 6th graders; however, the South Carolina 11th grade distribution differed considerably from the South Carolina distributions of the 3rd and 6th grades. This difference was evidenced primarily in the lower quarter and upper middle quarter. In the lower quarter for South Carolina, there was a larger percentage of 11th graders (41.6%) than 3rd graders (29.2%) or 6th graders (34.1%); and in the upper middle quarter, there was a smaller percentage of 11th graders (17.7%) than 3rd graders (24.7%) or 6th graders (21.6%).

Reading Total Performance Across Grades

In Figure 5.3, the histograms representing the percentages of South Carolina 3rd, 6th, and 11th graders scoring in each national quarter for Reading Total are given. The South Carolina distributions across Grades 3, 6, and 11 are very close to those for Battery Total. The South Carolina Grade 3 and Grade 6 distributions for Reading Total are very similar. As was the case for Battery Total, a substantially larger percentage of South Carolina 11th graders (40.6%) than 3rd graders (32.6%) or 6th graders (32.4%) scored in the lower quarter.

Language Total Performance Across Grades

The histograms presented in Figure 5.4 represent the percentages of South Carolina 3rd, 6th, and 11th graders falling into each national

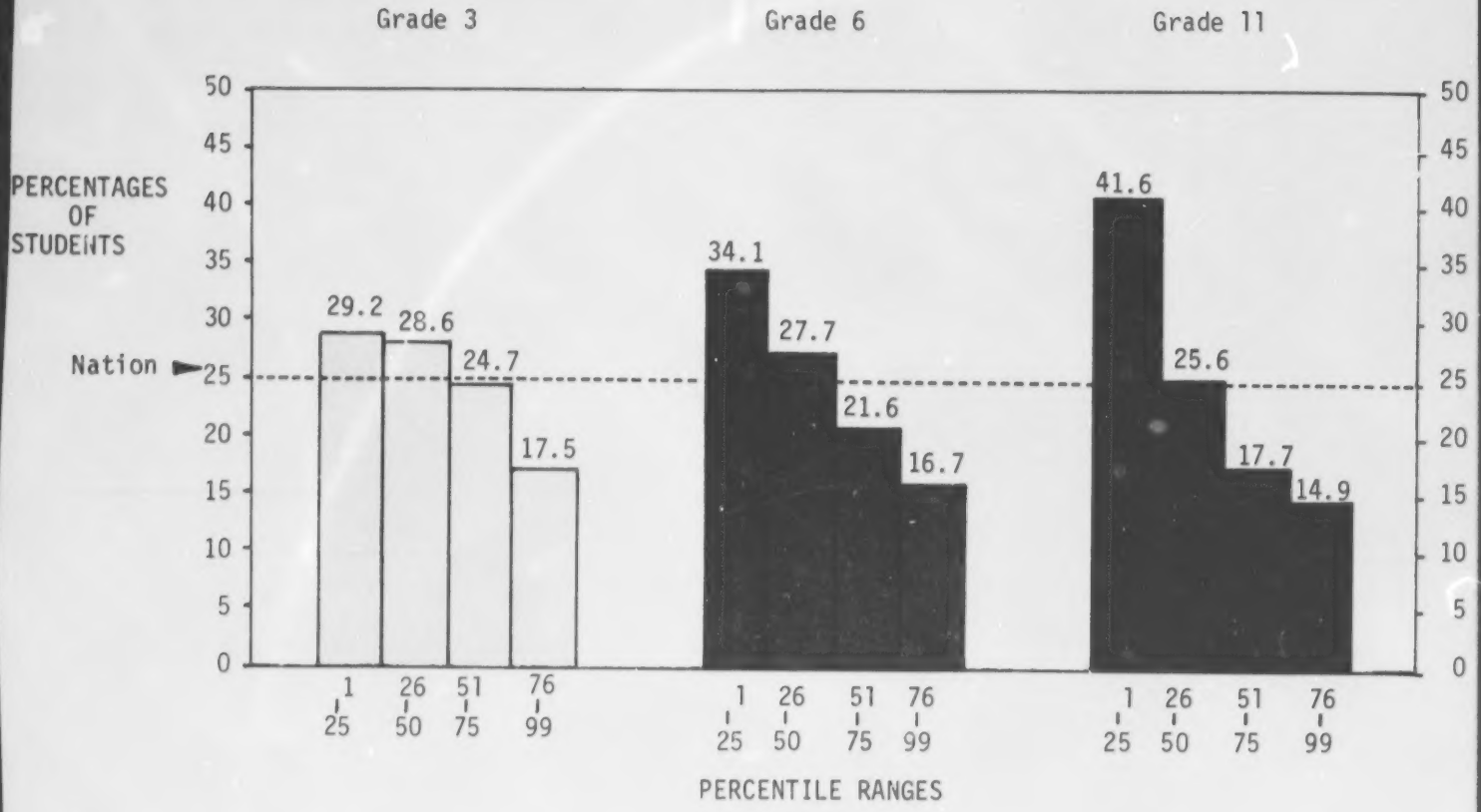


Figure 5.2

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

Battery Total

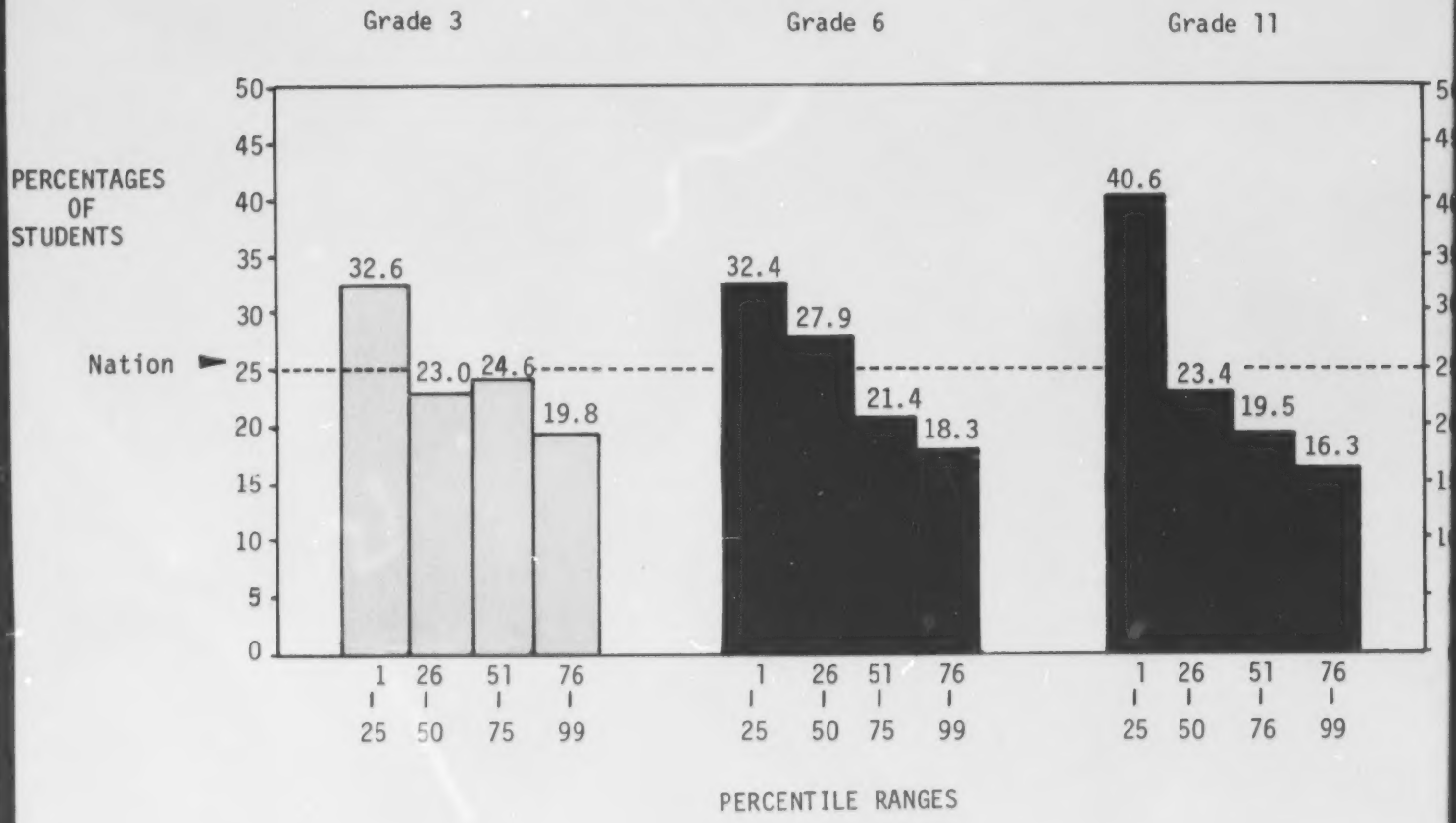


Figure 5.3

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

Reading Total

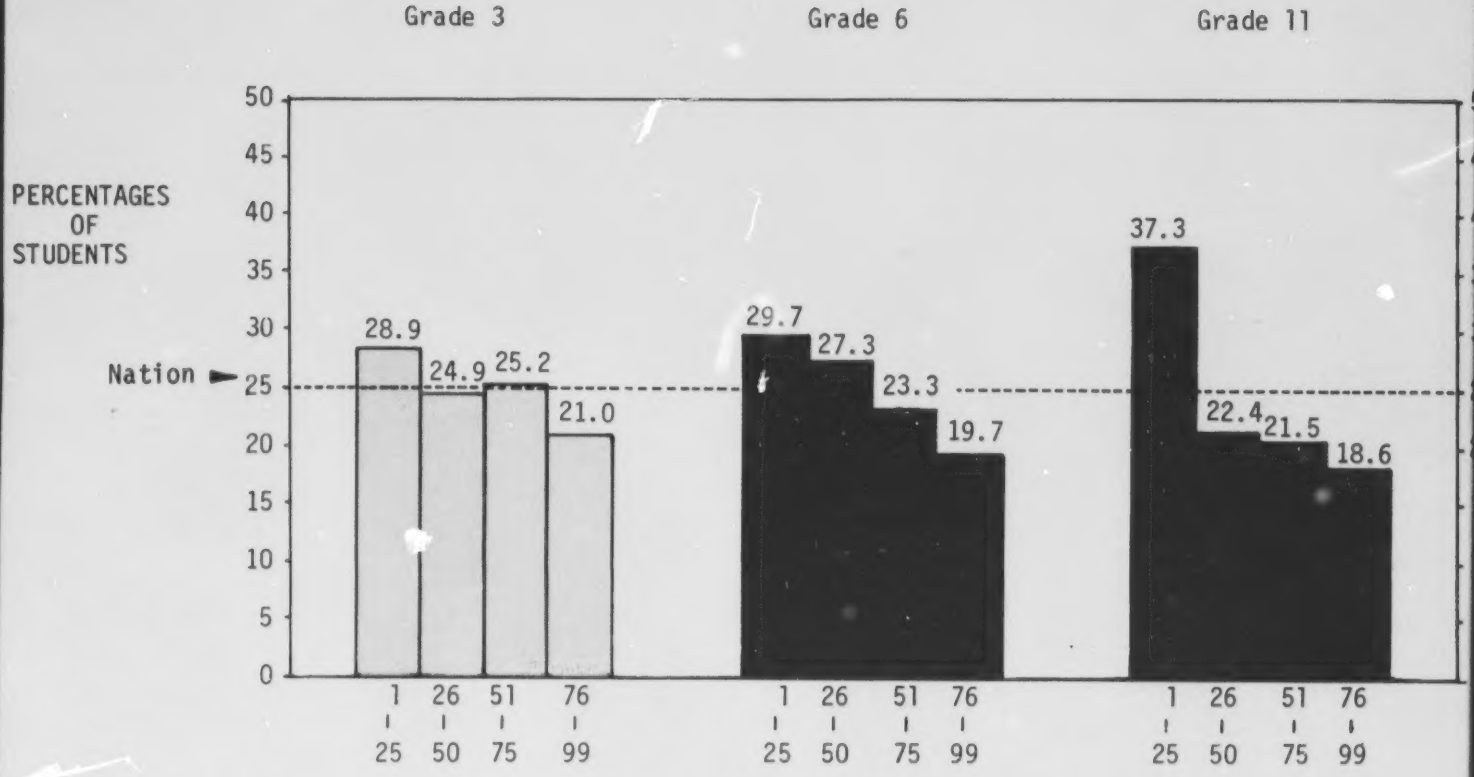


Figure 5.4

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

Language Total

quarter for Language Total. The South Carolina 3rd and 6th grade distributions for Language Total are quite similar to the national quarter distribution because almost 25 percent of the 3rd and 6th graders scored in each quarter. The actual percentages for Grade 3, proceeding from the lower quarter to the upper quarter, were 28.9 percent, 24.9 percent, 25.2 percent, and 21.0 percent. The actual percentages for Grade 6, proceeding from the lower quarter to the upper quarter, were 29.7 percent, 27.3 percent, 23.3 percent, and 19.7 percent. Again, performance in Language was lowest for 11th graders as indicated by the larger percentage (37.3%) of students falling in the lower quarter relative to the percentages of 3rd graders (28.9%) and 6th graders (29.7%) in the lower quarter.

Mathematics Total Performance Across Grades

In Figure 5.5, the histograms representing the percentages of South Carolina 3rd, 6th, and 11th graders falling into each national quarter for Mathematics Total are presented. In Mathematics, the South Carolina quarter distributions for Grades 3, 6, and 11 deviated substantially from the national quarter distributions. The lower quarter and lower middle quarter contained well over 50 percent of the total population of students at the 3rd (58.6%), 6th (65.2%), and 11th (67.3%) grade levels. The percentages in each of the upper quarters for the 3rd (14.9%), 6th (13.0%), and 11th (14.7%) graders were substantially less than the national expectation of 25 percent. The 3rd and 6th grade South Carolina quarter distributions more closely approximated the national distribution in Mathematics than did the South Carolina 11th grade quarter distribution. The percentages of students in the lower quarters for Mathematics were 27.9 percent in Grade 3, 31.6 percent in Grade 6, and 40.2 percent in Grade 11.

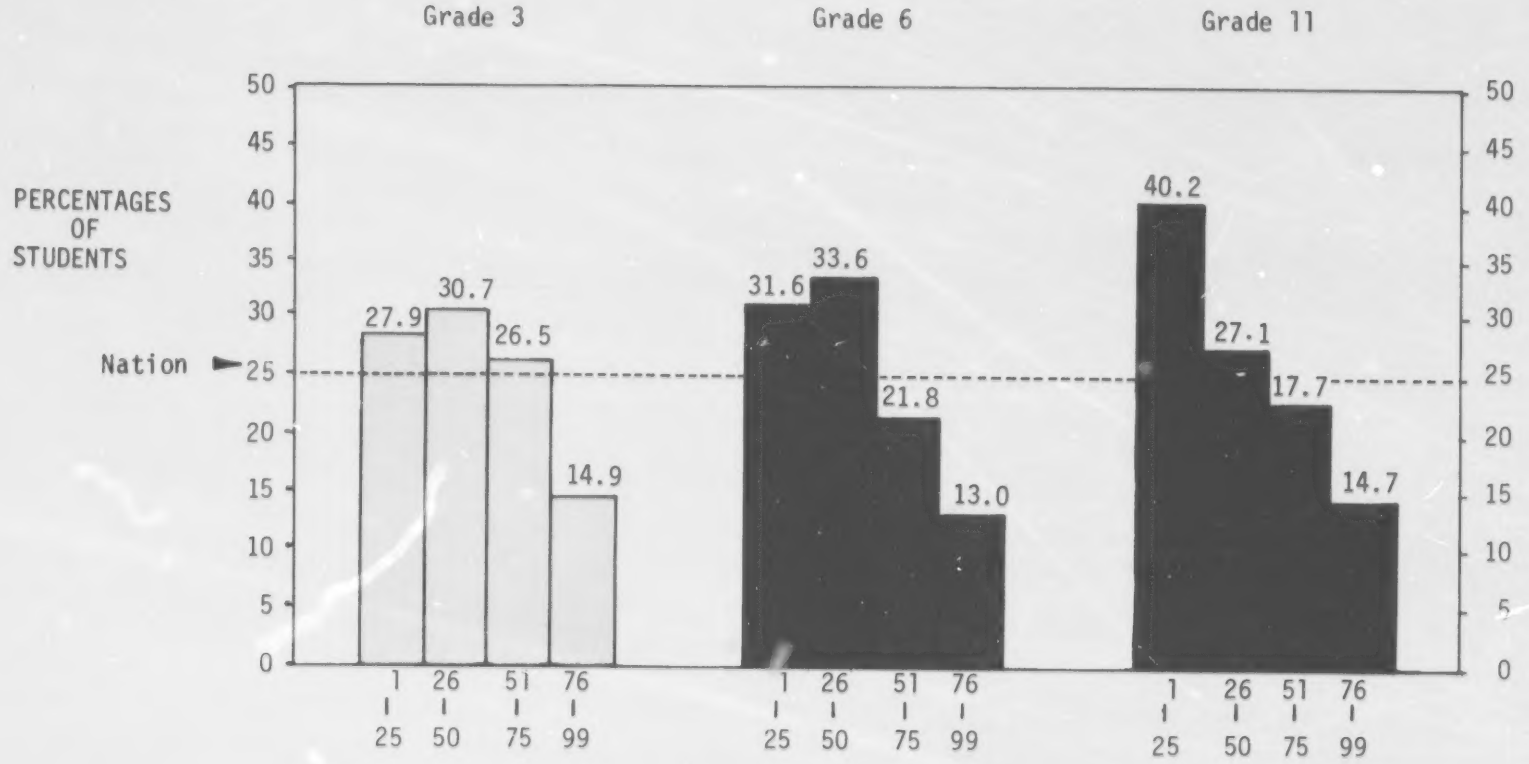


Figure 5.5

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

Mathematics Total

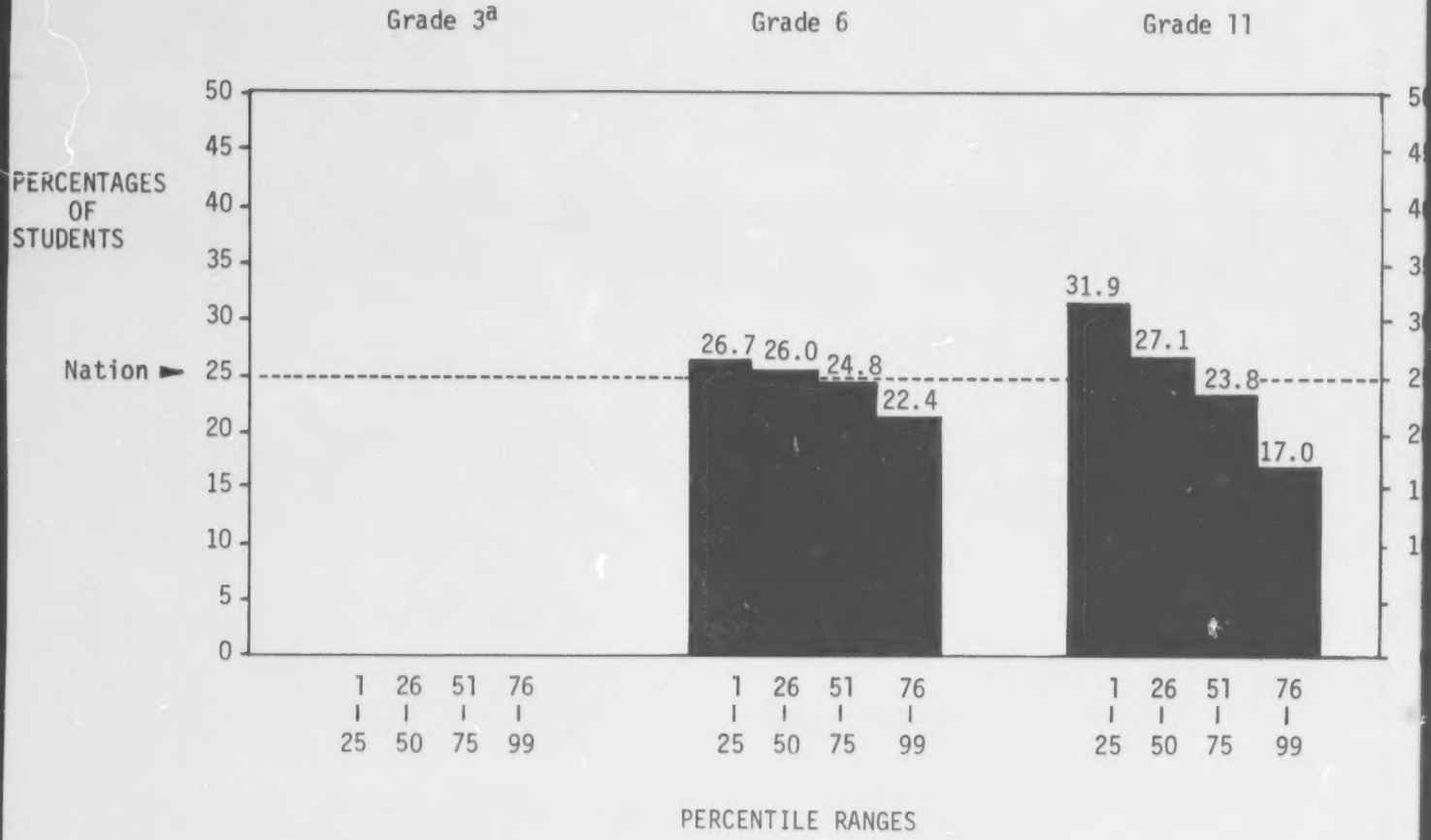
Reference Skills Performance Across Grades

The histograms presented in Figure 5.6 represent the percentages of South Carolina 3rd, 6th, and 11th graders falling into each national quarter for Reference Skills. At the 3rd grade level, there are no histograms presented since Reference Skills is not included on Level C of the CTBS/S. The Grade 6 national quarter distribution in Reference Skills more closely approximated the national quarter distribution of 25 percent in each quarter than did the Grade 11 national quarter distribution. Proceeding from the lower quarter to the upper quarter, the Grade 6 percentages were 26.7 percent, 26.0 percent, 24.8 percent, and 22.4 percent; whereas, the Grade 11 percentages were 31.9 percent, 27.1 percent, 23.8 percent, and 17.0 percent.

The percentages of 6th and 11th grade students scoring in each of the national quarters for Reference Skills more closely approximated the national percentages than the corresponding percentages for Battery Total (Figure 5.2), Reading Total (Figure 5.3), Language Total (Figure 5.4), or Mathematics Total (Figure 5.5). Additionally, the Grade 11 quarter distribution for Reference Skills, with 31.9 percent of the students scoring in the lower quarter, showed distinct improvement over the Grade 11 quarter distributions for any of the other skill areas. The percentages of South Carolina students in the lower quarter for these skill areas ranged from 37.3 percent on Language Total (Figure 5.4) to 40.6 percent on Reading Total (Figure 5.3).

Science Performance Across Grades

In Figure 5.7, the histograms representing the percentages of South Carolina 3rd, 6th, and 11th grade students falling into each national quarter for Science are presented. The Grade 3 and Grade 6 distributions in Science more closely approximated the national quarter distribution than did the Grade 11 distribution. Proceeding from the lower quarter to the upper quarter, the percentages of students scoring in each quarter were 29.7 percent, 22.6 percent, 23.5 percent, and 24.2



[a]There is no Reference Skills Test on Level C of the CTBS/S.

Figure 5.6

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

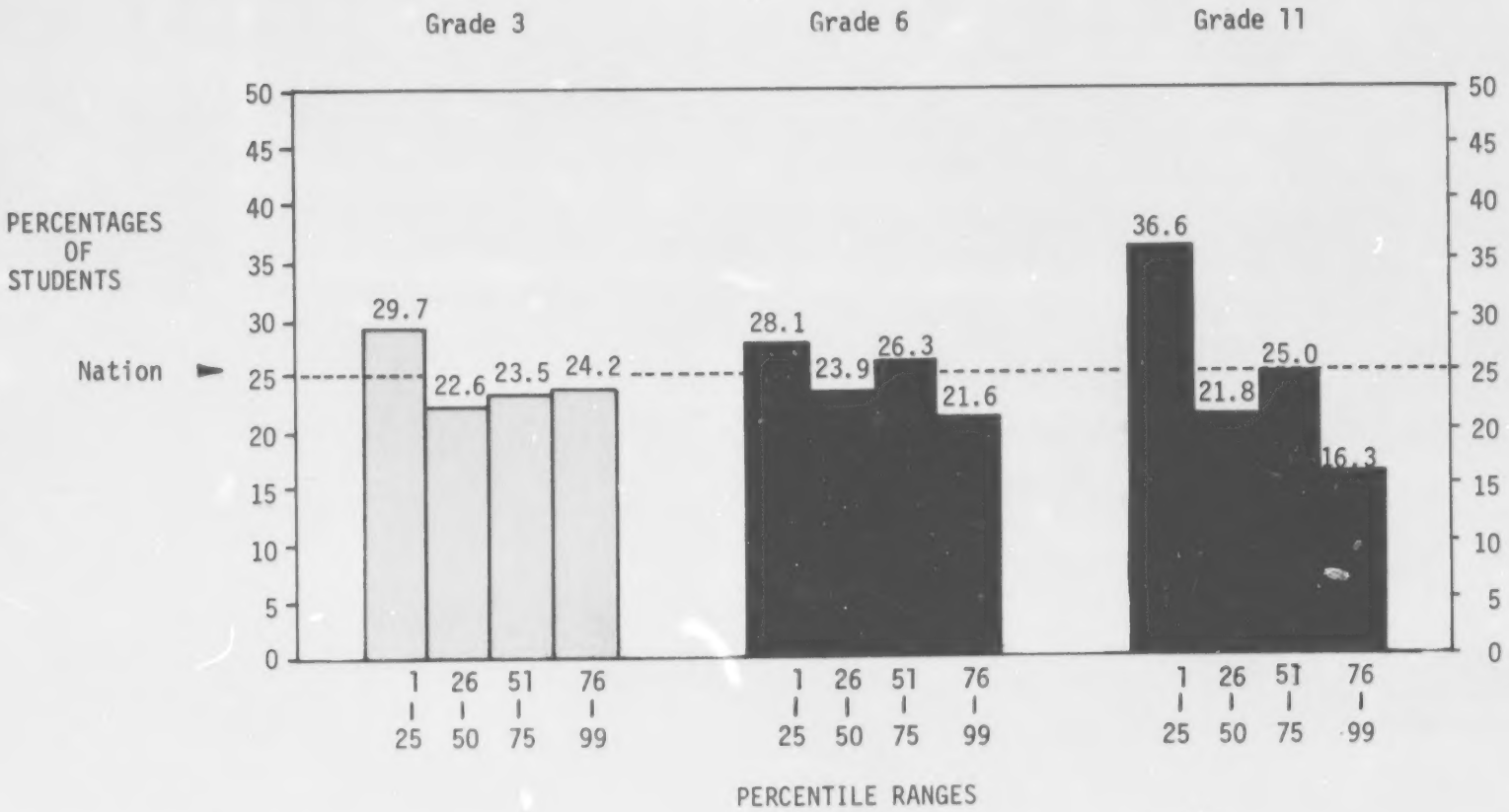


Figure 5.7

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

Science

percent for Grade 3; 28.1 percent, 23.9 percent, 26.3 percent, and 21.6 percent for Grade 6; and 36.6 percent, 21.8 percent, 25.0 percent, and 16.3 percent for Grade 11. With the exception of the lower quarter, the Grade 3 students were fairly evenly distributed. The 11th grade had the largest proportion of students (36.6%) scoring in the lower quarter, indicating that relative performance in Science was lower for 11th graders than for 3rd or 6th graders.

Social Studies Performance Across Grades

Presented in Figure 5.8 are the histograms representing the percentages of South Carolina 3rd, 6th, and 11th graders falling into each national quarter for Social Studies. Across all three grades, the proportions of students scoring in the lower two quarters and the upper two quarters were reasonably constant at approximately 60.0 percent and 40.0 percent, respectively.

Comparison of Skill Area and Subskill Area Performance Across and Within Grades

In this section, comparisons of student performance across and within Grades 3, 6, and 11 are made for each skill area and subskill area, using normal curve equivalent (NCE) scores. The following two questions are addressed: (1) "How does the performance of 3rd, 6th, and 11th graders compare for each skill and subskill area?"; and (2) "What are the relative strengths and weaknesses of South Carolina students at a specific grade level?".

Until the advent of the NCE score, the scale score was the score used for making comparisons across grade levels in a particular skill area; and the national percentile was the score used for making comparisons across skill areas. However, NCE's have distinct advantages over scale scores and national percentiles and, as a result, are the most appropriate scores to use in making both types of comparisons. (Refer to Chapter III, "Definitions of Scores", for a definition of the normal

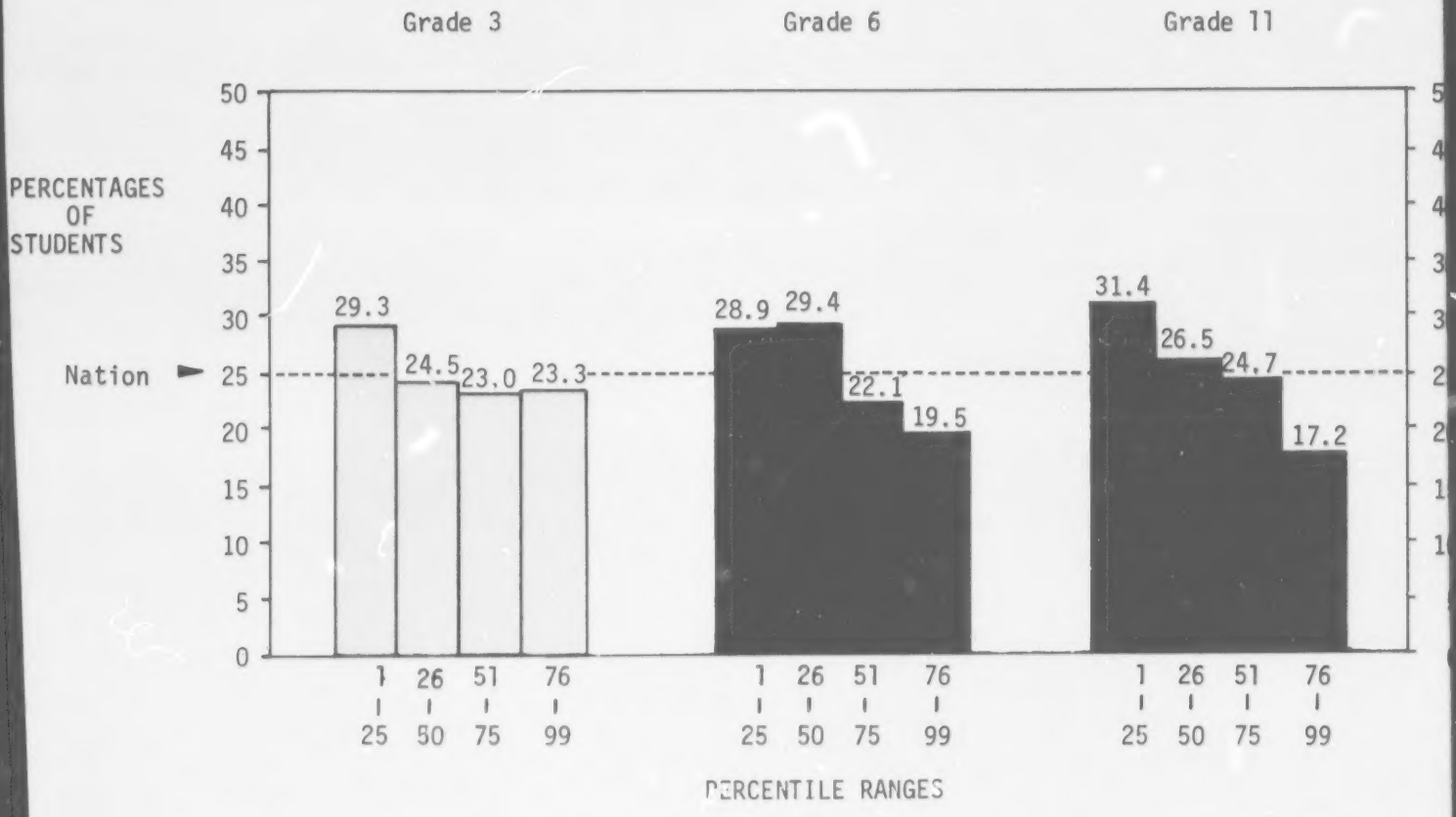


Figure 5.8

Histograms Representing Percentages of South Carolina Grade 3, 6, and 11 Students in Each of the National Quarters

Social Studies

curve equivalent (NCE) score and a discussion of the advantages of NCE's over scale scores and national percentiles.)

The approach of converting mean scale scores to NCE's was used throughout the report for technical reasons. Therefore, for ease of discussion, the NCE's converted from mean scale scores are referred to as mean NCE's.

The first part of this section presents an overview of across and within grade performance on Reading Total, Language Total, Mathematics Total, and Battery Total. In subsequent subsections, the across and within grade performance is discussed for the various Reading, Language, and Mathematics Subtests and for the Reference Skills, Science, and Social Studies Tests.

In Table 5.1, the State test results in NCE's for Grades 3, 6, and 11 for each of the skill areas and subskill areas are given. The NCE scores as reported in Table 5.1 indicate that, in general, the performance of 3rd graders was slightly above that of 6th graders and that the performance of 11th graders was below the performance of the other two grade levels. When compared to national normative data using NCE's, the 11th grade performance is clearly the most deficient of the three grades tested. The NCE scores of South Carolina students at all grade levels for all tests and subtests are at or below the mean national NCE of 50.

The same test and subtest scores reported in Table 5.1 are presented in graphic form in Figures 5.9 through 5.13. Since these figures more clearly illustrate achievement patterns for the State across grade levels than the tabulated data, the discussion of the State test results focuses on these figures.

Reading Total, Language Total, Mathematics Total, and Battery Total

Figure 5.9 presents an overview of South Carolina 3rd, 6th, and 11th grade performance in the three major skill areas of Reading, Language, and Mathematics and for Battery Total.

As indicated in Figure 5.9, the three grades display similar achievement patterns. For all three grades, the area of Language was

Table 5.1

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

All Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	369	460	611	47	44	41
Reading Comprehension	NA[b]	489	606	NA[b]	48	43
Reading Total	371	466	600	47	46	42
Language Mechanics	424	490	578	49	48	41
Language Expression	430	498	600	47	48	47
Spelling	411	478	590	48	47	48
Language Total	403	474	584	48	47	44
Mathematics Computation	357	447	554	48	46	43
Mathematics Concepts	NA[b]	450	599	NA[b]	45	43
Mathematics Applications	NA[b]	455	570	NA[b]	45	41
Mathematics Total	355	443	564	47	45	41
Battery Total	344	445	592	47	45	41
Reference Skills	NA[b]	503	627	NA[b]	50	46
Science	390	484	586	48	48	45
Social Studies	389	476	596	49	46	46
n[c]	43,359	44,216	39,183	43,359	44,216	39,183

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

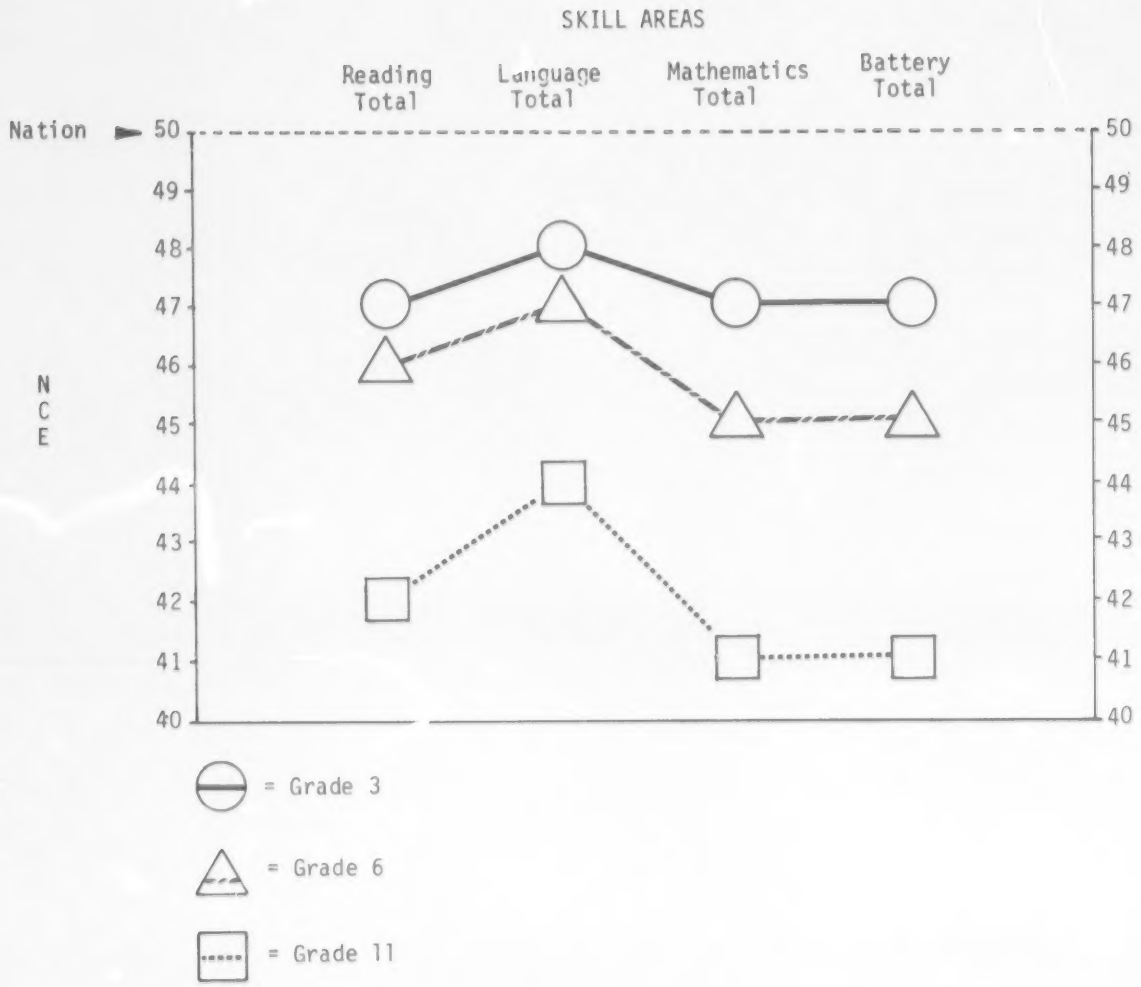


Figure 5.9

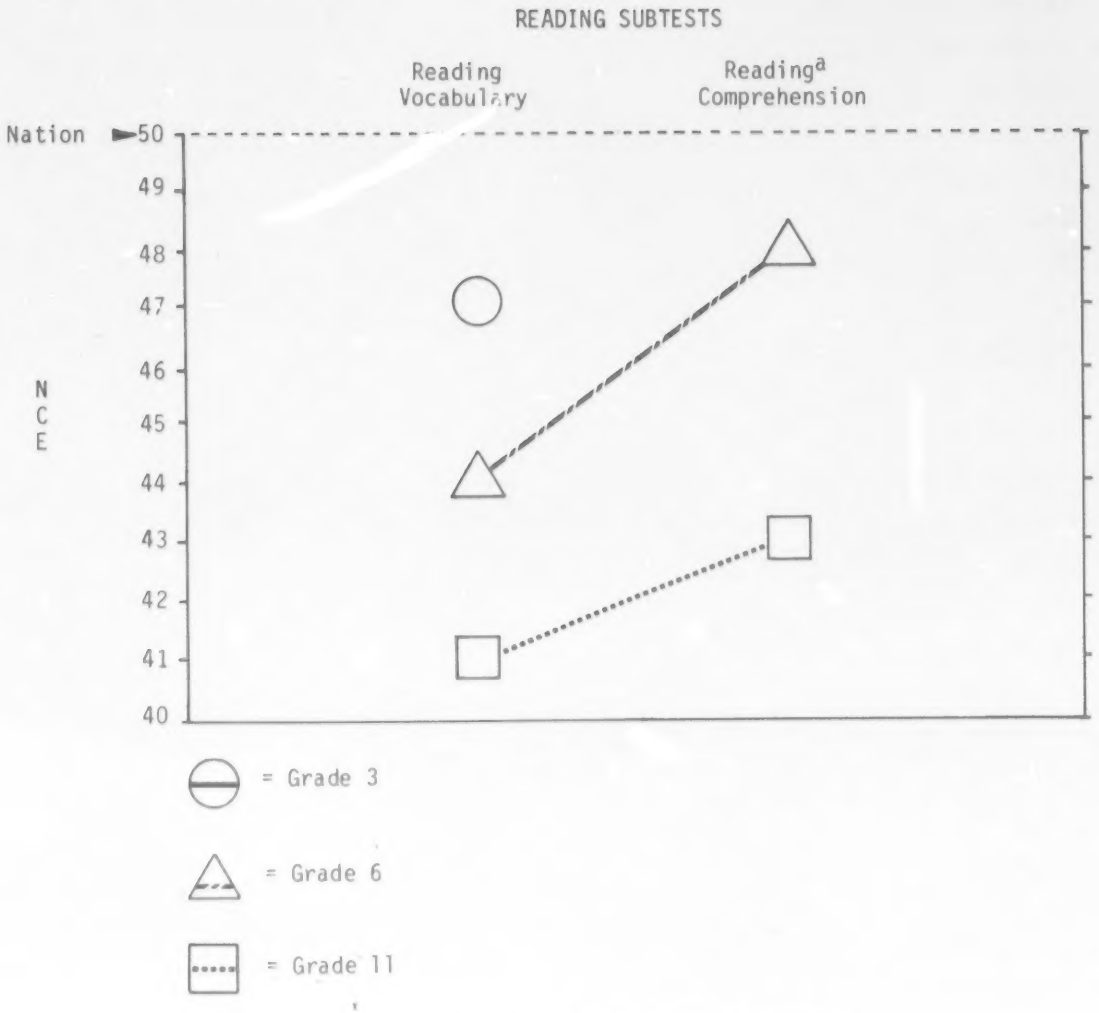
Graph of Mean Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11

Reading Total, Language Total, Mathematics Total,
and Battery Total

consistently strong relative to the nation. In South Carolina, the mean NCE score in Language was 48 for 3rd graders and 47 for 6th graders, while the mean NCE score for 11th graders was 44. Mathematics and Battery Total were the weakest areas for all three grades with 3rd graders scoring a mean NCE of 47 in both areas, 6th graders scoring a mean NCE of 45 in both areas, and 11th graders scoring a mean NCE of 41 in both areas. The achievement level of Reading was between the achievement levels of Language and Mathematics for all three grades. In Reading, 3rd graders scored a mean NCE of 47; 6th graders scored a mean NCE of 46; and 11th graders scored a mean NCE of 42.

Reading Subtests Performance Across and Within Grades

Figure 5.10 illustrates the performance of South Carolina 3rd, 6th, and 11th graders on the subtests comprising Reading Total. Note that only the Reading Vocabulary Subtest data are graphed for Grade 3. Since Level C of the CTBS/S does not contain a subtest comparable to the Reading Comprehension Subtest of Level 1, data for the Reading Comprehension Subtest were only available for students who took Level 1. Inclusion of the Reading Comprehension data for only those 3rd grade students who took Level 1 would not give an accurate picture of performance on Reading Comprehension for all of South Carolina 3rd graders. Therefore, these data were omitted from Figure 5.10. For 6th graders, achievement in Reading Comprehension (NCE=48) was superior to achievement in Reading Vocabulary (NCE=44). For 11th graders, performance in Reading Vocabulary (NCE=41) was closer to performance in Reading Comprehension (NCE= 43) than at the 6th grade level. On the Reading Vocabulary Subtest, the achievement level of South Carolina 3rd graders (NCE=47) was closer to the achievement level of students in the nation than the achievement levels of 6th graders (NCE=44) or 11th graders (NCE=41).



[a]Data are not available for this subtest in Grade 3.

Figure 5.10

Graph of Mean Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11

Reading Subtests

Language Subtests Performance Across and Within Grades

Figure 5.11 illustrates the performance of South Carolina 3rd, 6th, and 11th graders on the subtests comprising Language Total. From Figure 5.11, the inference can be made that performance on the three Language Subtests was quite consistent for 3rd and 6th graders. The 3rd grade students scored a mean NCE of 49 in Language Mechanics, 47 in Language Expression, and 47 in Spelling. Performance of the 6th grade students was slightly lower than 3rd grade students in Language Mechanics with a mean NCE of 48 and in Spelling with a mean NCE of 46. The mean NCE performance of 47 in Language Expression was identical for all three grades. For Spelling, the 11th grade mean NCE performance of 48 was slightly higher than the mean NCE performance for the 3rd and 6th grades. However, the 11th graders scored considerably lower than the 3rd and 6th graders on Language Mechanics with a mean NCE of 41.

Mathematics Subtests Performance Across and Within Grades

In Figure 5.12, the performance of South Carolina 3rd, 6th, and 11th grade students is shown for the Mathematics Subtests. Figure 5.12 indicates that, in Mathematics Computation, scores decreased from the 3rd grade to the 11th grade: 3rd grade students had a mean NCE score of 48, 6th grade students had a mean NCE of 46, and 11th grade students had a mean of 43. The 3rd grade data are only provided for the Mathematics Computation Subtest since the Mathematics Concepts and Mathematics Applications Subtests were incompatible for Levels C and 1. The achievement of 6th graders was virtually the same for the three Mathematics Subtests. The achievement of the 11th graders was the same on the Computation and Concepts Subtests (NCE's=43) but declined on the Mathematics Applications Subtest (NCE=41).

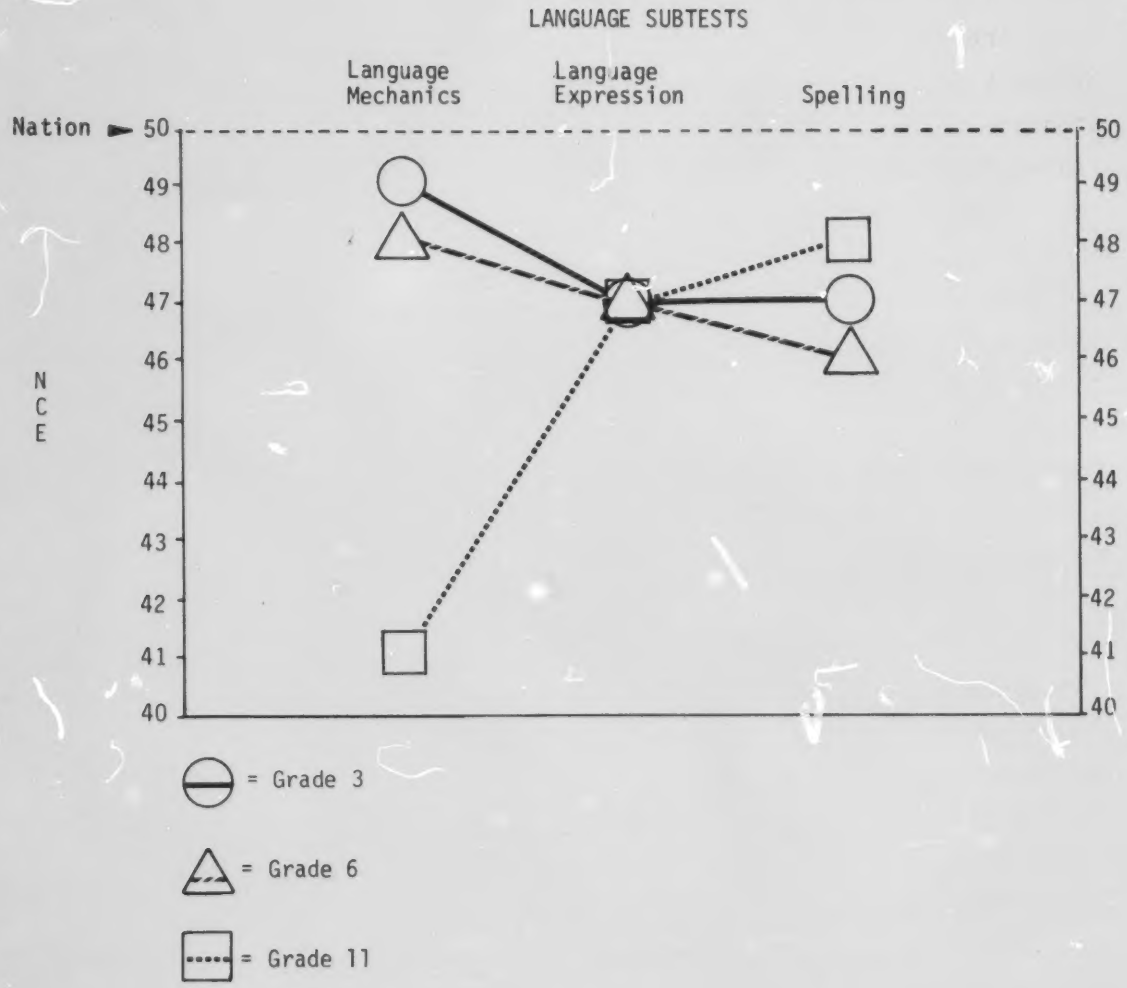
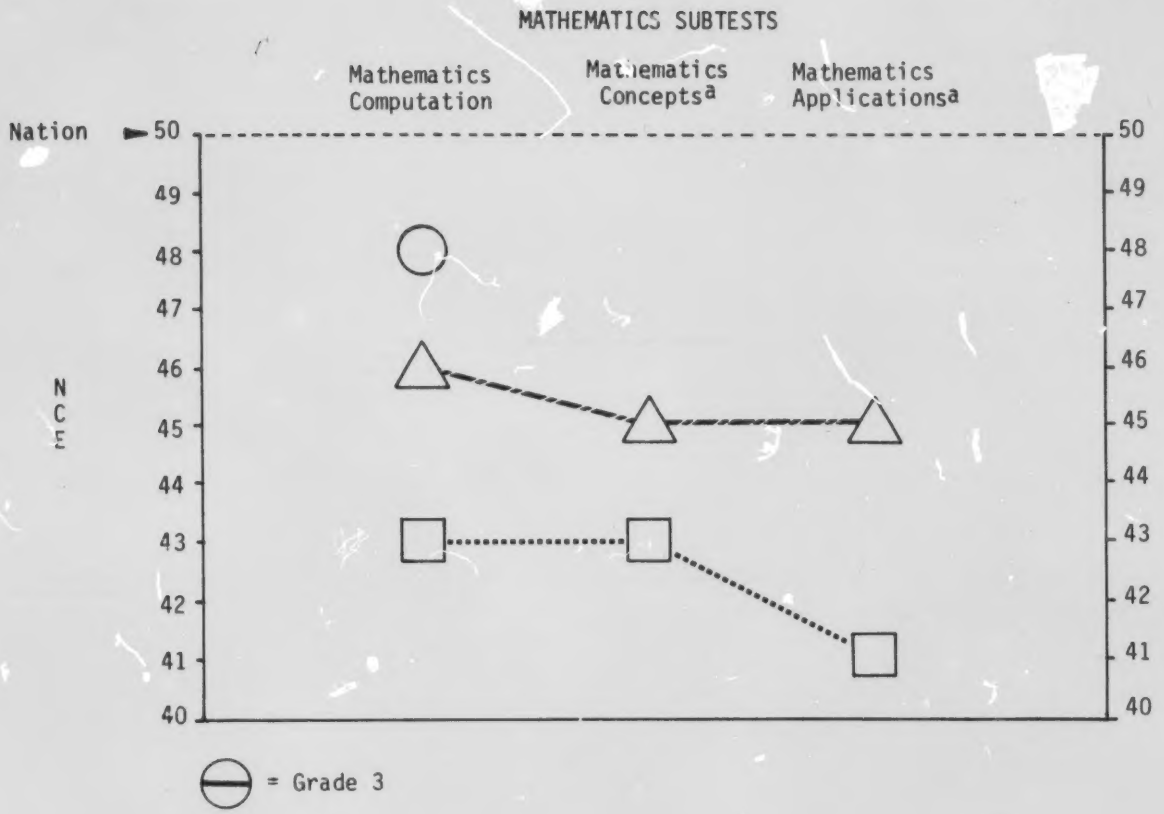


Figure 5.11

Graph of Mean Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11

Language Subtests



[a]Data are not available for these subtests in Grade 3.

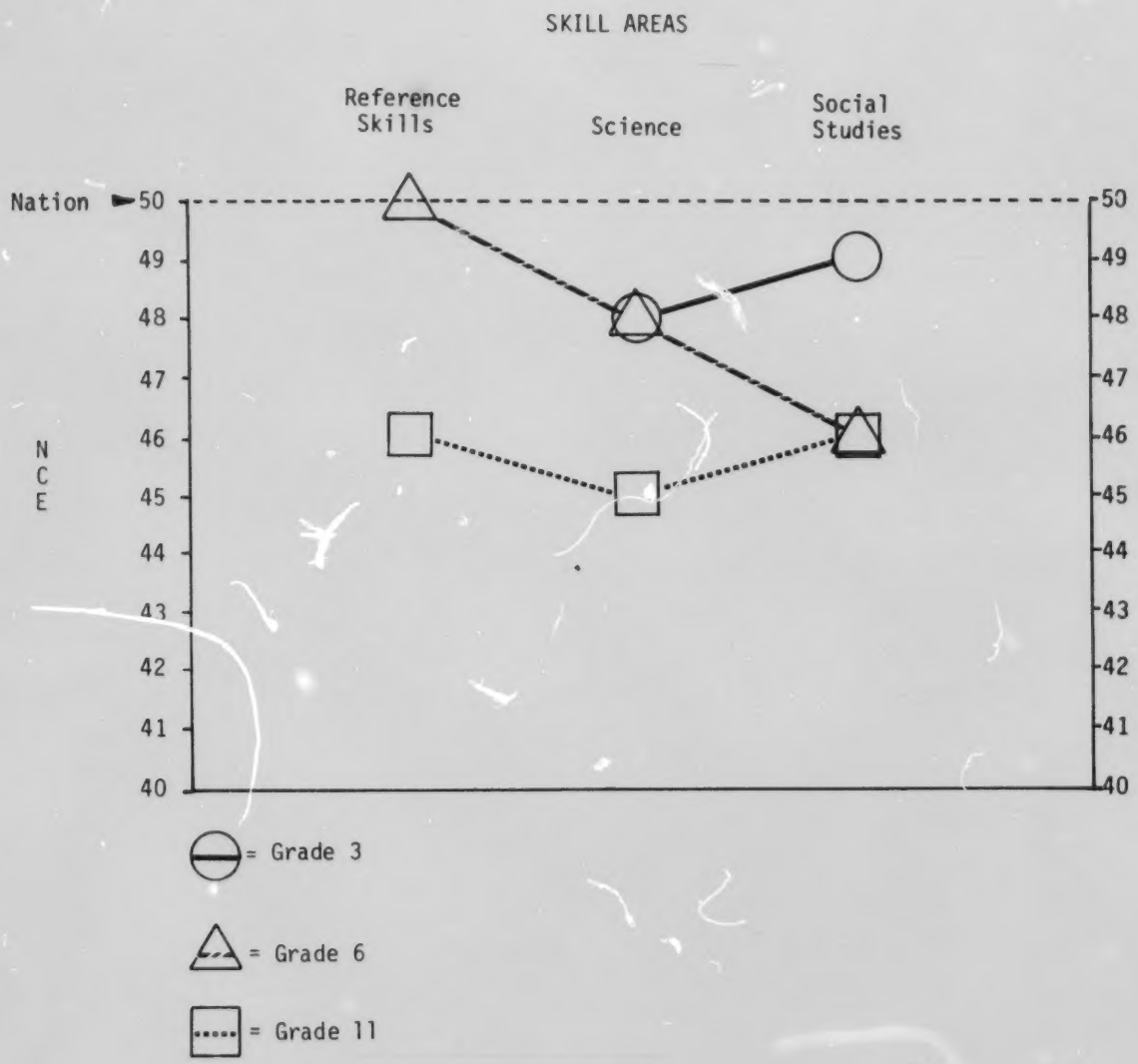
Figure 5.12

Graph for Mean Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11

Mathematics Subtests

Reference Skills, Science, and Social Studies Performance Across and Within Grades

The performance of South Carolina 3rd, 6th, and 11th grade students in Reference Skills, Science, and Social Studies, which are the tests not included in the Battery Total, is illustrated in Figure 5.13. Relative to the mean national NCE of 50, South Carolina performance in the skill areas of Reference Skills (excluding Grade 3), Science, and Social Studies tended to be higher than performance in the major skill areas of Reading, Language, and Mathematics. The Reference Skills data are missing for Grade 3 since there is no Reference Skills Test on Level C of the CTBS/S. In Reference Skills, South Carolina 6th graders had a mean NCE of 50, thus achieving the national norm. For all three grade levels, the performance of South Carolina students in these three areas (excluding Reference Skills for Grade 3) was similar to the relatively high performance exhibited by each grade level in the Language area with NCE's ranging from a low of 45 for Science in Grade 11 to a high of 50 for Reference Skills in Grade 6.



[a]Data are not available for Reference Skills in Grade 3.

Figure 5.13

Graph of Mean Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11

Reference Skills, Science, and Social Studies

CHAPTER VI

COMPARISONS OF SUBGROUP PERFORMANCE ACROSS AND WITHIN GRADES AND OF ADJUSTED SOUTH CAROLINA DATA

Introduction

The purpose of this chapter is twofold: (1) to compare the performance for each of six subgroups across and within grade levels and (2) to compare South Carolina performance to national performance, using data adjusted for population differences. The results of these comparisons are presented in this chapter. Tables and graphs are used to assist in the presentation of the results.

In the first section, "Comparison of Subgroup Performance Across and Within Grades", the data are provided for various subgroups of students. As part of the Statewide Testing Program, data were collected on race, sex, and Title I classification in order to observe the achievement of six different subgroups of students: white, nonwhite, male, female, non-Title I, and Title I. Comparisons for each of these six subgroups are made across and within Grades 3, 6, and 11.

In the second section, "Comparison of Adjusted South Carolina Data to the National Normative Data", South Carolina's data are adjusted for population differences to conform to the racial distribution in the national sample. Because the national normative sample contained a higher proportion of whites than South Carolina's population of students, South Carolina's scores were adjusted to account for this difference. The discussions in this section focus on two adjusted comparisons for each grade: (1) comparisons between the adjusted score distribution for Battery Total and the national score distribution for Battery Total and (2) comparisons of South Carolina's adjusted performance to the nation's for the various skill areas, using NCE's.

Comparison of Subgroup Performance Across and Within Grades

Many educators find grouping test data on variables such as race, sex, and Title I status very helpful. One advantage of grouping test results by such variables is that relative strengths and weaknesses often vary from subgroup to subgroup. For example, the performance of females in areas requiring verbal skills generally exceeds their performance in areas requiring quantitative skills; whereas, the reverse is generally true for males.

When grouping data on various characteristics, comparisons between subgroups such as males and females should not be made. Although the results of most of these subgroup comparisons could easily be inferred from the available literature, the results for a single subgroup such as males should only be compared with the subgroup's national normative counterpart, the national sample of males. Making comparisons between the performance of a subgroup within the State and the subgroup's appropriate national norm group would be useful. Unfortunately, no such normative data exists; therefore, determining how well South Carolina whites, nonwhites, males, females, non-Title I students, or Title I students performed when compared to their national counterparts is impossible.

Since the primary purpose of this section is to provide information on the relative strengths and weaknesses for subgroups, the students tested in Grades 3, 6, and 11 were stratified on each of the three variables, race, sex, and Title I status. The subgroups formed from this stratification were white, nonwhite, male, female, non-Title I, and Title I. The test results in this section are discussed by each of these subgroups. Within each subgroup, comparisons of student performance are made across grades. In other words, Grade 3 white students are compared with Grades 6 and 11 white students. Strengths and weaknesses of each subgroup relative to the nation are also discussed for each grade. Since comparisons across subgroups should not be made, a conscious effort was made to exclude such comparisons. For example, Grade 3 white students are not compared with Grade 3 nonwhite

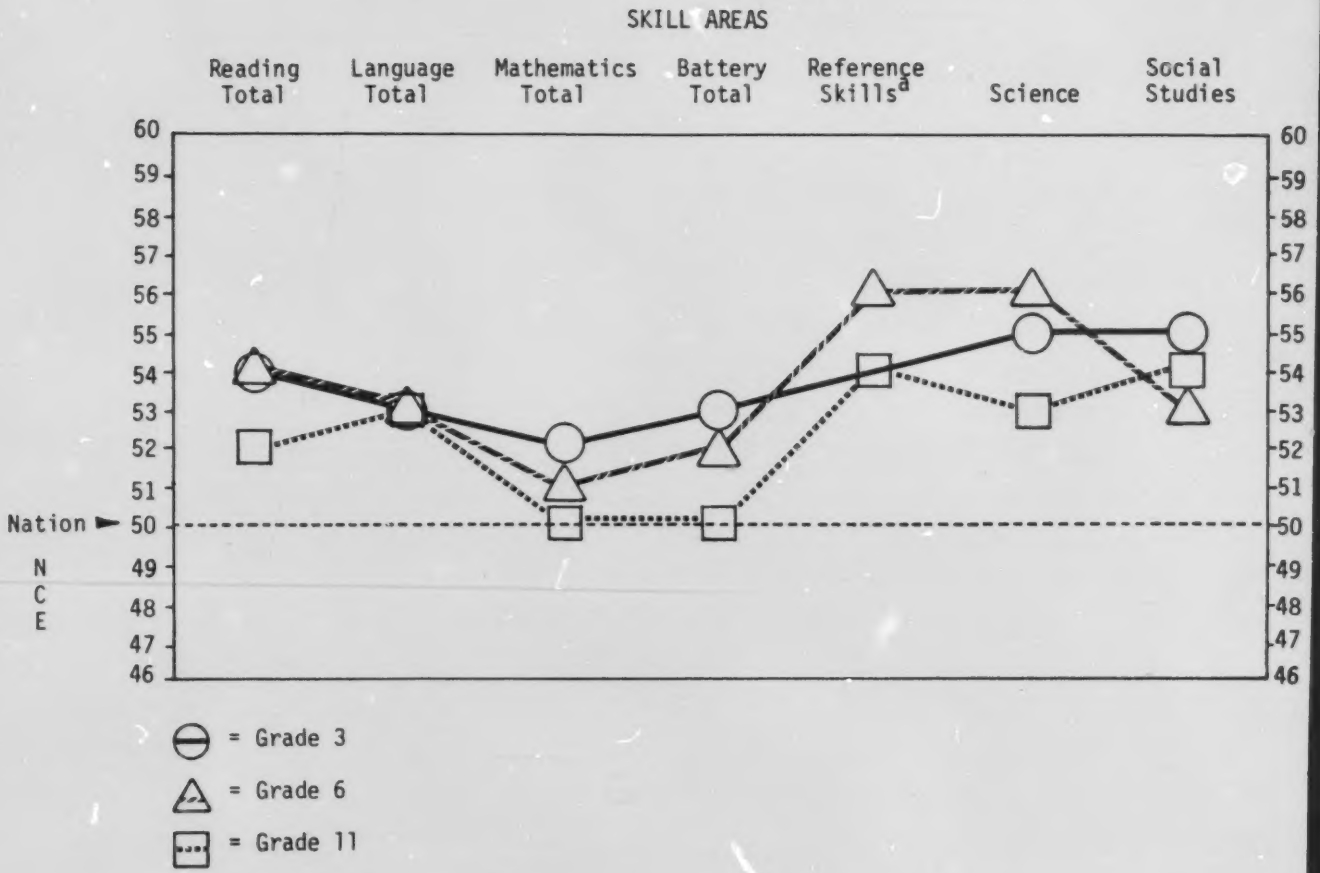
students.

Mean scale scores and normal curve equivalents specific to each subgroup are presented for the subtests, tests, and Battery Total in Appendix C. Additionally, median national percentiles and median grade equivalents specific to each subgroup are presented for the subtests, tests, and Battery Total in Appendix D. For the purpose of discussing subgroup strengths and weaknesses, only data for the tests and Battery Total are presented in Figures 6.1 through 6.6. The format of the figures is similar to the format used in Figures 5.9 through 5.13. The NCE's reported in Figures 6.1 through 6.6 are all presented relative to the national normative sample and facilitate comparisons across skill areas and Battery Total both within and across grades. However, these comparisons should be interpreted with great caution since the populations being compared are not the same.

White Subgroup

The most distinctive feature of the white students' performance in Figure 6.1 is the consistency of their performance across the three grades. Across all three grades, the performance of white students was at or above the national mean. Additionally, the differences of the available mean NCE scores across grades for each skill area were 3 NCE's or less.

Consistency in performance was also exhibited across skill areas within a given grade. Across skill area performance was so similar that caution must be exercised in the interpretation of relative skill area strengths and weaknesses. The range of mean NCE scores across skill areas for each grade was no more than 5 NCE score points. Third grade white students performed highest in the areas of Science and Social Studies, while 6th grade white students performed highest in Reference Skills and Science, and 11th grade white students performed highest in Reference Skills and Social Studies. For all three grades, the lowest skill area performance occurred in Mathematics. In Reading, 3rd and 6th graders performed at the same level relative to the nation and slightly



[a]Data are not available for Reference Skills in Grade 3.

Figure 6.1

Graph of Mean Normal Curve Equivalents for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Skill Areas and Battery Total

White Subgroup

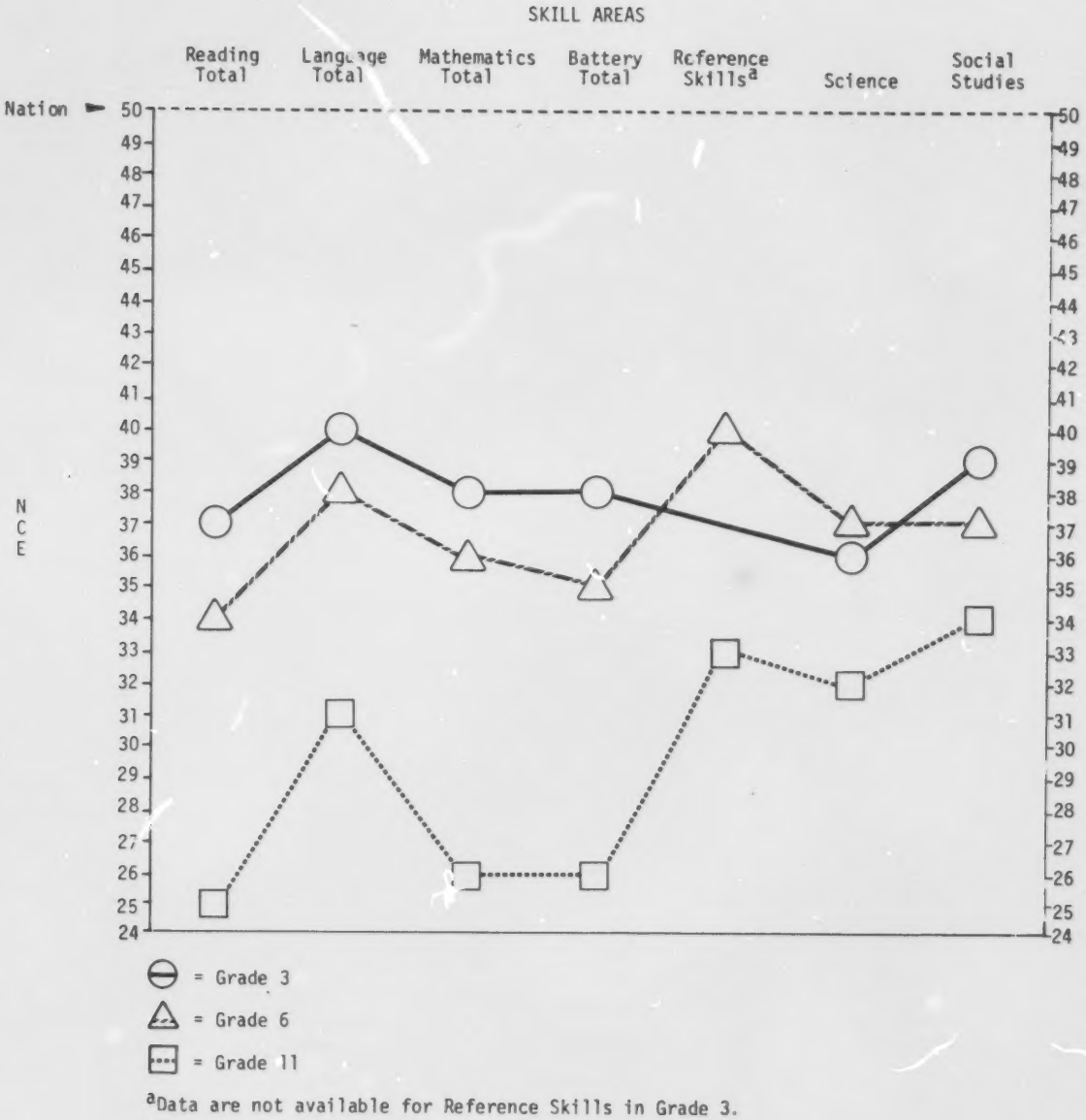
above the 11th graders. Whereas, in Language, the performance of the white students in all three grades was at the same level relative to the nation. On overall achievement as measured by Battery Total, 3rd graders ranked first relative to the nation; 6th graders ranked second; and 11th graders ranked third.

Nonwhite Subgroup

The most striking feature of Figure 6.2 is the low performance of Grade 11 nonwhite students when compared to the nonwhite students in Grades 3 and 6. For the areas of Reading, Language, Mathematics, Battery Total, and Reference Skills, 11th graders performed from 7 to 10 NCE points below 3rd and 6th graders. Performance differences for the skill areas of Science and Social Studies were less varied with differences of 3 and 5 points, respectively. Among the three major skill areas of Reading, Language, and Mathematics, the highest performance of nonwhite students was in Language, with Reading achievement and Mathematics achievement consistently lower. In general, the performance of 3rd grade and 6th grade nonwhite students was similar with a 2 to 3 NCE point drop in all areas (except Science) from the 3rd to the 6th grades. However, the loss of NCE points from the 6th to the 11th grade was much more meaningful in that most differences were in the 7 to 10 point range. Unfortunately, these losses occurred in the basic skills areas of Reading, Language, and Mathematics, as well as in Reference Skills.

Male Subgroup

Male student performance, as noted in Figure 6.3, was consistent across each of the three grades. Scores in each grade were similar for the skill areas of Reading, Language, and Mathematics, as well as Battery Total. Scores tended to increase for the areas of Reference Skills, Science, and Social Studies, as has been the general case with South Carolina data. Across the grades, there was a small general

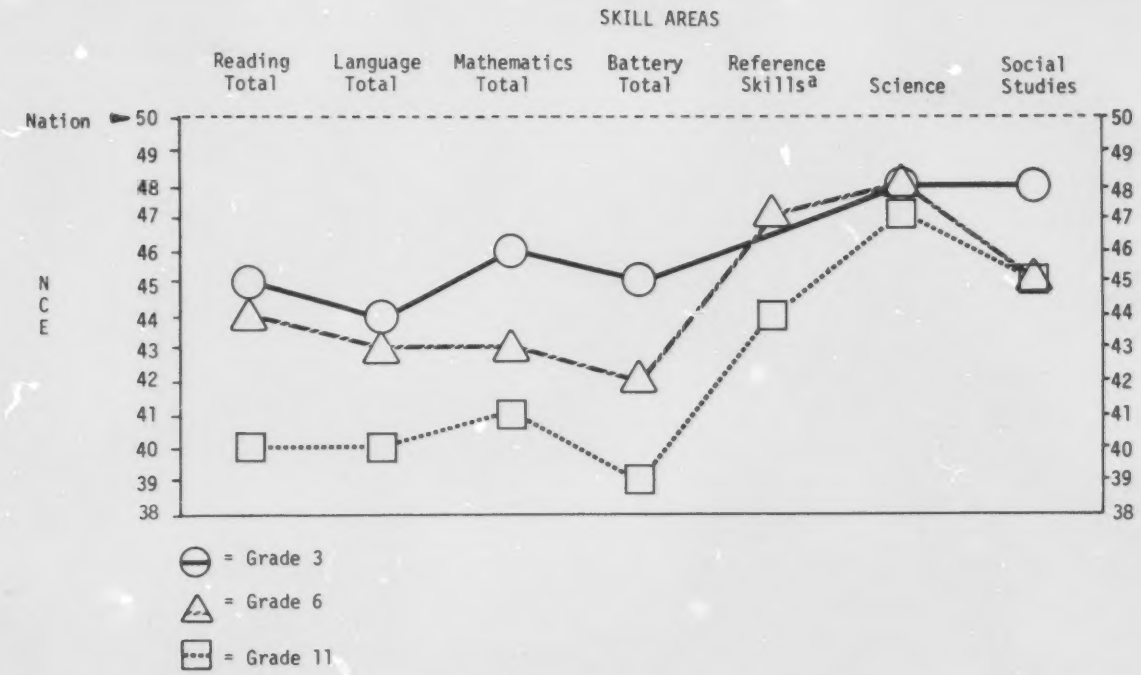


[a]Data are not available for Reference Skills in Grade 3.

Figure 6.2

Graph of Mean Normal Curve Equivalents for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Skill Areas and Battery Total

Nonwhite Subgroup



[a]Data are not available for Reference Skills in Grade 3.

Figure 6.3

Graph of Mean Normal Curve Equivalents for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Skill Areas and Battery Total

Male Subgroup

decline from the 3rd to the 6th grade and a larger drop from the 6th to the 11th grade. There was a decline of 3 NCE points between the 3rd and 6th grades in the areas of Mathematics, Battery Total, and Social Studies. All other differences (where comparisons could be made) were either 0 or 1 when comparing NCE points between the 3rd and 6th grades. Slightly larger negative differences for male students occurred between the 6th and 11th grades with differences of 3 NCE's for Language, Battery Total, and Reference Skills and 4 NCE's for Reading. Male students dropped only 2 points in Mathematics, 1 point in Science, and none in Social Studies between the 6th and 11th grades.

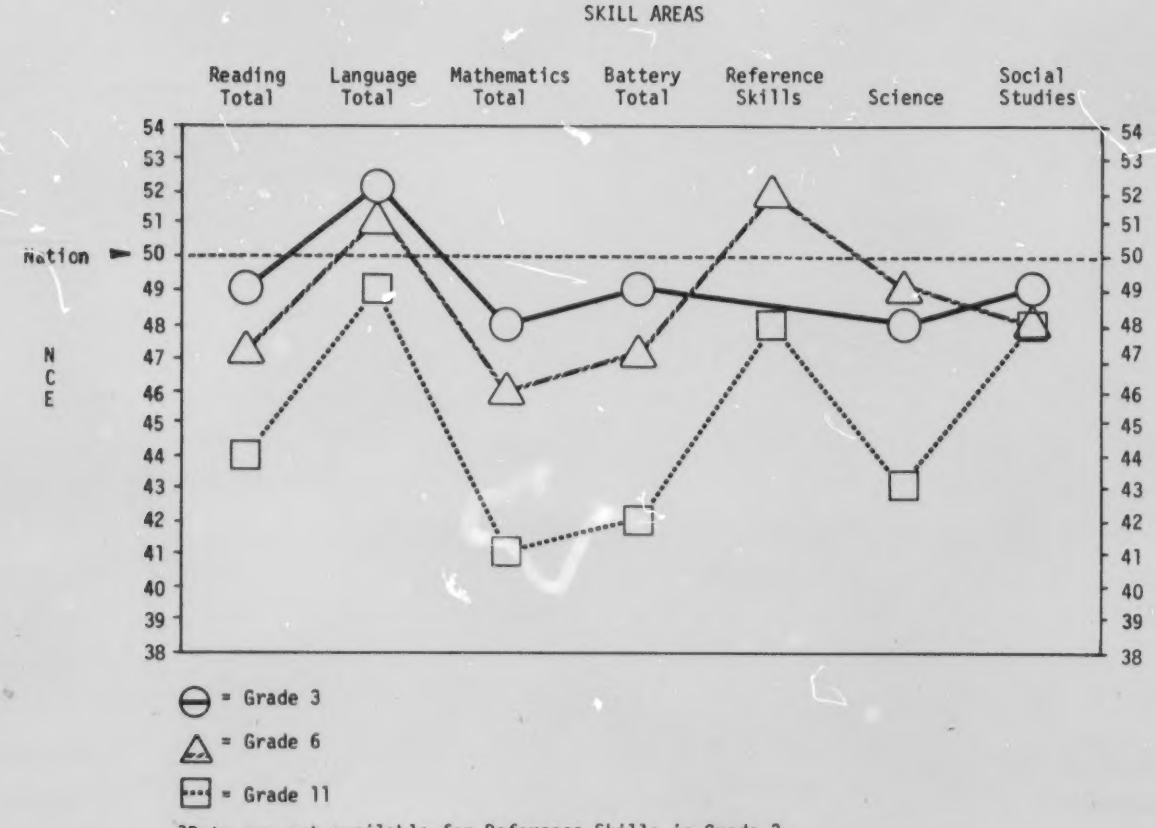
Female Subgroup

Female student performance, as demonstrated in Figure 6.4, was more varied than male performance across all skill areas. Females also declined more severely from the 6th to the 11th grade. The tendency for 11th grade females to achieve at a lower level than 3rd and 6th grade females was evidenced by the 4 to 6 NCE point declines in Mathematics, Battery Total, Reference Skills, and Science. Losses from the 3rd to the 6th grade were no more than 2 NCE points with an increase of 1 point in Science. Among the three skill areas of Reading, Language, and Mathematics, the performance of females in Language in all three grades was consistently the highest; while scores in Mathematics were always the lowest. In Language, females scored near or above the national mean in each of the three grades.

Non-Title I Subgroup

With the exception of the 11th grade, the performance of non-Title I students presented in Figure 6.5 was close to the national mean NCE of 50. For Grades 3 and 6, the NCE's on all tests and the Battery Total ranged from 49 to 55 with only one score below the national mean.

Because most Title I funds are utilized by districts primarily for the areas of Reading and Mathematics in the elementary grades, fewer

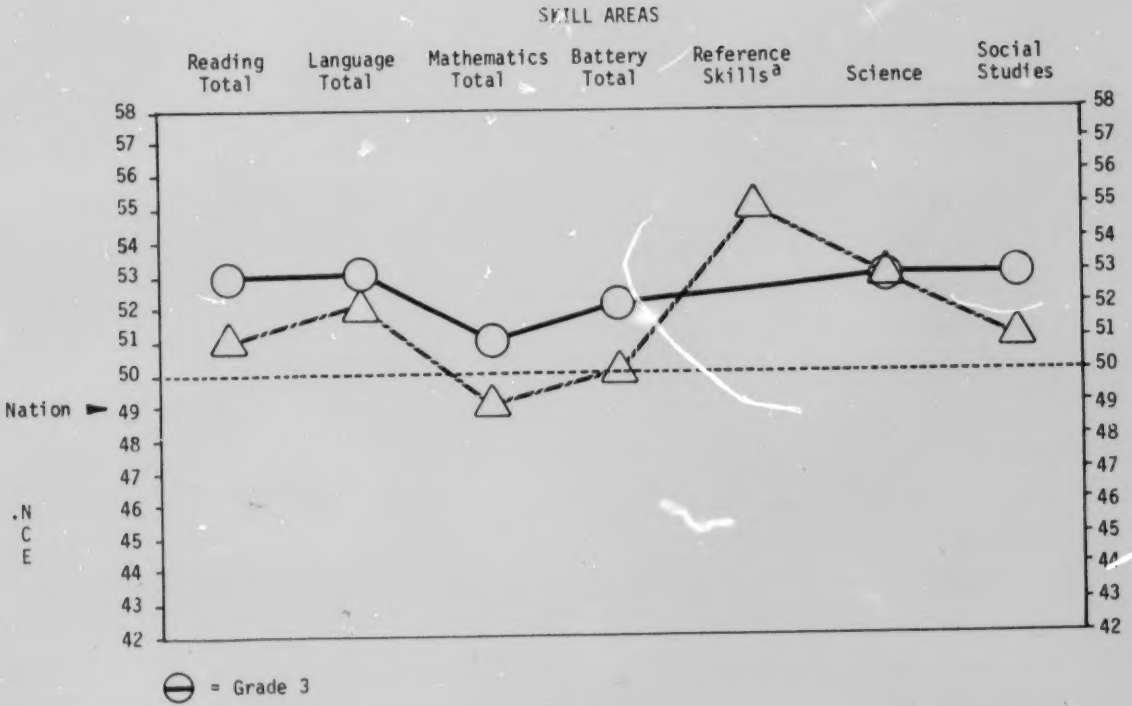


[a]Data are not available for Reference Skills in Grade 3.

Figure 6.4

Graph of Mean Normal Curve Equivalents for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Skill Areas and Battery Total

Female Subgroup



[a]Data are not available for Reference Skills in Grade 3.

Figure 6.5

Graph of Mean Normal Curve Equivalents for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Skill Areas and Battery Total

Non-Title I Subgroup

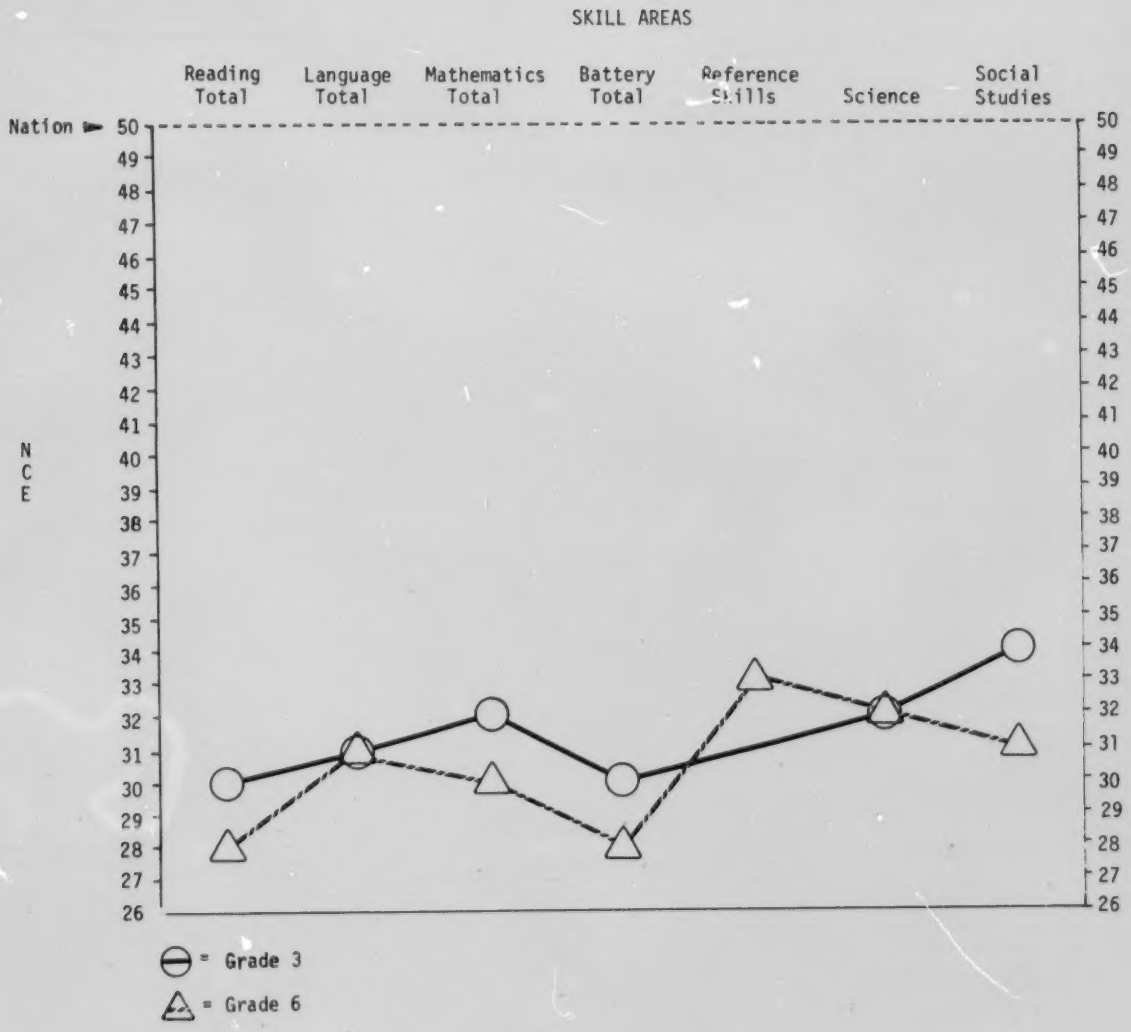
11th grade students are served by Title I funds. Therefore, the non-Title I 11th grade student results included a large number of students who would be classified as Title I students if more funds were allocated by districts for 11th grade students. Because of the district allocation process, Title I and non-Title I data were not included for the 11th grade.

Title I Subgroup

Title I students in Grades 3 and 6 were coded as being in Title I Reading Programs only, Title I Mathematics Programs only, or Title I Reading and Mathematics Programs. For the purpose of reporting results, these three coded categories were grouped to form four different subgroups of Title I students: the Title I Subgroup, the Title I Reading Subgroup, the Title I Mathematics Subgroup, and the Title I Reading and Mathematics Subgroup. The discussion of the Title I results, however, will focus only on the results for the Title I Subgroup in Figure 6.6.

The Title I Subgroup includes 3rd and 6th grade students who were coded as being in Title I Reading Programs only, Title I Mathematics Programs only, or Title I Reading and Mathematics Programs. Since Title I students are selected on the basis of being educationally deprived children in low-income areas, as expected, the performance of 3rd and 6th grade Title I students as indicated in Figure 6.6 was considerably below that of the national normative sample for all skill areas tested and Battery Total. Achievement patterns for both 3rd and 6th graders were very similar. Reference Skills was the highest performance area for Title I 6th graders, and Social Studies was the highest performance area for Title I 3rd graders. Reading was the lowest performance area for both Title I 3rd and 6th graders.

Tables of the mean scale scores in normal curve equivalents for the Title I Reading Subgroup, the Title I Mathematics Subgroup, and the Title I Reading and Mathematics Subgroups are reported in Appendix C. Additionally, the corresponding median national percentiles and median



[a]Data are not available for Reference Skills in Grade 3.

Figure 6.6

Graph of Mean Normal Curve Equivalents for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Skill Areas and Battery Total

Title I Subgroup

grade equivalents are reported for these three Title I subgroups in Appendix D. The Title I Reading Subgroup includes students who were coded as being in Title I Reading Programs only and in Title I Reading and Mathematics Programs. The Title I Mathematics Subgroup includes students who were coded as being in Title I Mathematics Programs only and in Title I Reading and Mathematics Programs. The Title I Reading and Mathematics Subgroup includes students who were coded as being in Title I Reading and Mathematics Programs.

Comparison of Adjusted South Carolina Data to the National Normative Data

The approach used in this section involved the production of a score distribution which would be expected if the racial distribution in South Carolina were similar to the racial distribution of the national normative sample. A more desirable approach would have been to adjust on the basis of the differences in socioeconomic status (SES) between the South Carolina population and the national normative sample; however, since SES data were not available, the adjustments were made on the basis of race. This seemed to be a reasonable approach since SES and race are highly correlated. The adjusted frequency distribution was determined by weighting the test scores of white students more heavily than the test scores of nonwhite students to reflect the proportion of white and nonwhite students in the national sample. This weighting process adjusts for the fact that South Carolina has a disproportionately larger percentage of nonwhite students compared to the nation; and, thus, a disproportionately smaller percentage of white students. The implication is that, if the racial distribution of students in South Carolina and the racial distribution of students in the nation were made identical, the variation in test scores associated with race or SES could be eliminated. The difference between the adjusted State data and the national data provides a more accurate indication of the performance of the South Carolina students relative to the students in the national normative sample.

In the first subsection, the South Carolina Adjusted Battery Total Percent Distribution is compared to the South Carolina Actual Battery Total Percent Distribution and to the National Battery Total Percent Distribution for each grade level, using scale scores. In the second subsection, comparisons of performance across skill areas, using adjusted NCE's, are made for Grades 3, 6, and 11.

Adjusted Comparisons for the South Carolina Battery Total Percent Distribution

In the frequency polygons in Figures 6.7 through 6.9, the South Carolina Actual Battery Total Percent Distribution is compared to the South Carolina Adjusted Battery Total Percent Distribution and the National Battery Total Percent Distribution for Grades 3, 6, and 11, using scale scores. In each of these three figures, the solid line represents the actual percent distribution; the spiral line represents the adjusted percent distribution which would be expected if the racial distribution in South Carolina more closely approximated that of the national normative sample; and the dashed line represents the national percent distribution. The actual Battery Total Percent Distributions (solid lines) are duplications of the distributions presented earlier in Figure 5.1.

The three percent distributions for Battery Total scale scores are presented in Figure 6.7 for the Grade 3 data. As expected, Figure 6.7 indicates that South Carolina's actual performance distribution (the solid line) is lower than both the racially adjusted distribution (the spiral line) and the national distribution (the dashed line). However, the racially adjusted distribution is only slightly lower than the national distribution. Therefore, adjusting South Carolina's scores on the racial characteristic shifted South Carolina's distribution close to the national distribution.

The results for Grade 6 are presented in Figure 6.8. Again, South Carolina's actual distribution is at the lower end of the scale when compared with the racially adjusted and national distributions. As in

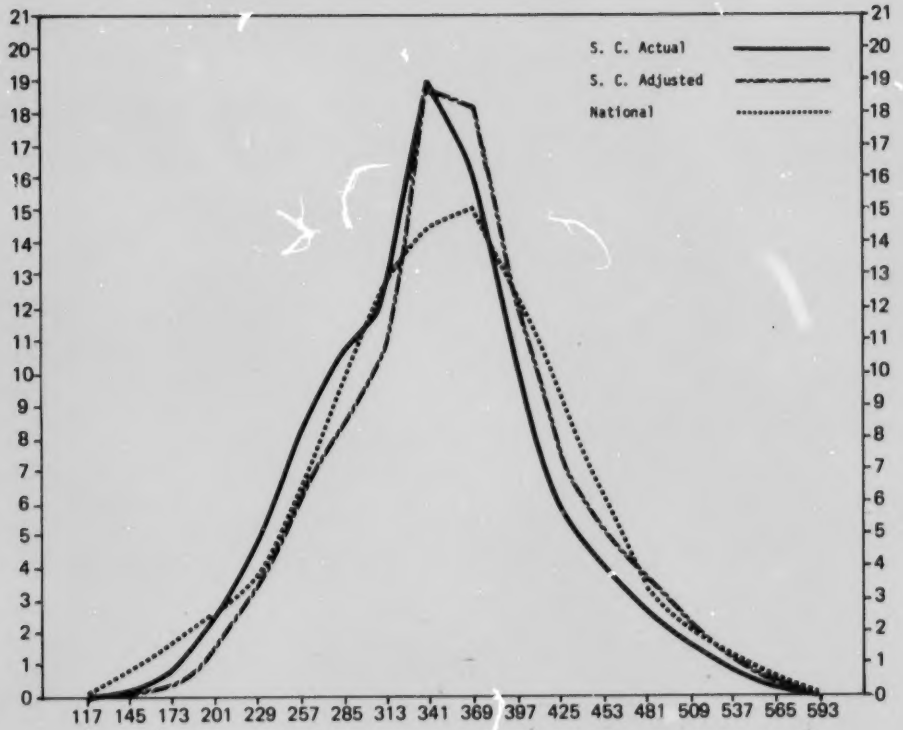


Figure 6.7

Percent Distribution of South Carolina Actual, South Carolina Adjusted, and National Battery Total Scale Scores

Grade 3

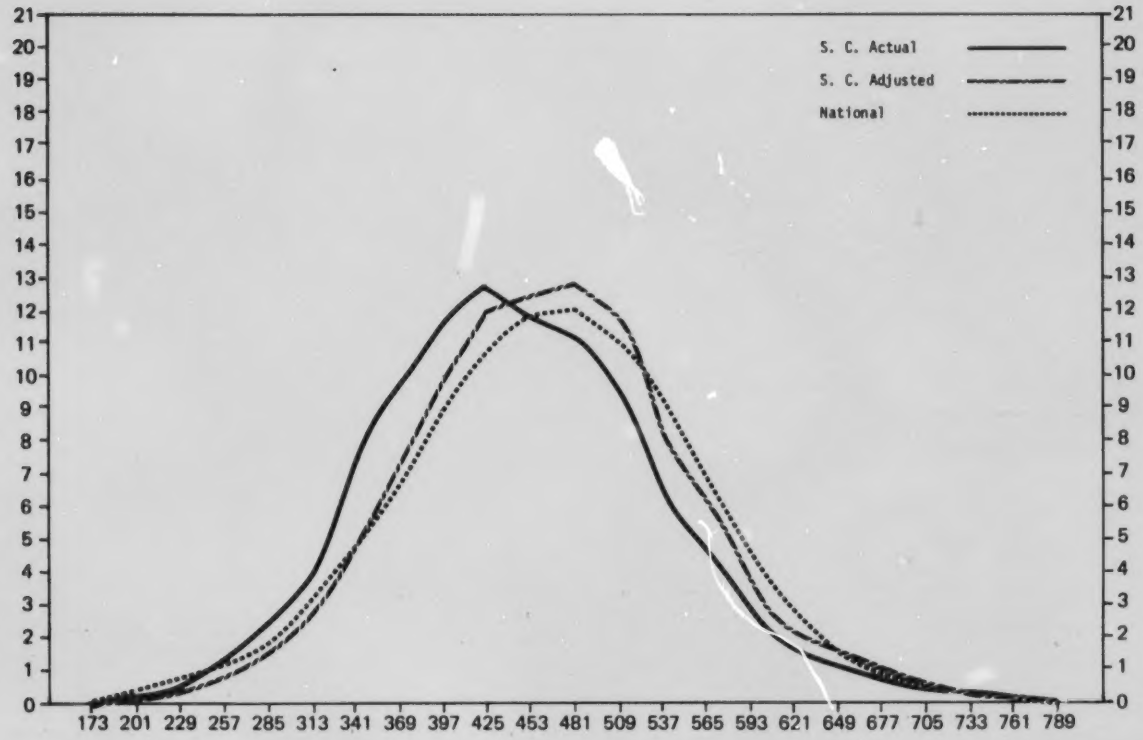


Figure 6.8

Percent Distribution of South Carolina Actual, South Carolina Adjusted, and National Battery Total Scale Scores

Grade 6

Grade 3, the racially adjusted distribution for Grade 6 more closely approximated the national distribution.

Figure 6.9 indicates that the pattern of the Grade 11 distribution is consistent with the Grade 3 and Grade 6 distributions. If anything, the pattern is accentuated at Grade 11.

Figures 6.7, 6.8, and 6.9 indicate that, when the racial population difference between South Carolina and the nation is taken into account, South Carolina student performance relative to the nation does not appear as low as the actual test scores suggest. The data for the South Carolina Actual, South Carolina Adjusted, and National Percent Distributions for Grades 3, 6, and 11 are tabled in Appendix E.

Adjusted Comparisons for the Major Skill Areas and Battery Total

Since the general picture has been presented graphically for Battery Total scale scores, presentation of information specific to the subtests and skill area tests in a tabular format is in order. Using the adjusted scale score distributions, means were obtained and converted into their normal curve equivalents (NCE's). These results are presented in Table 6.1. For convenience, the actual NCE's from Table 5.1 are also reproduced in Table 6.1. Graphs of the tabled data for the skill areas and the Battery Total are presented for each of Grades 3, 6, and 11 in Figures 6.10, 6.11, and 6.12, respectively. In these figures, the solid circles represent South Carolina's actual NCE means; the broken circles represent South Carolina's adjusted NCE means; and the dotted line represents the national NCE mean of 50. The ensuing discussion of the differences between South Carolina's actual NCE scores and South Carolina's adjusted NCE scores centers on these figures.

Grade 3: Figure 6.10 provides a graph of South Carolina 3rd grade mean NCE's for the skill areas and the Battery Total. Although a similar performance pattern exists for all skill areas and the Battery Total for both the actual and the adjusted means, the adjusted NCE scores are definitely higher than the actual NCE scores. The adjusted NCE scores are close to the national mean NCE of 50. For both actual

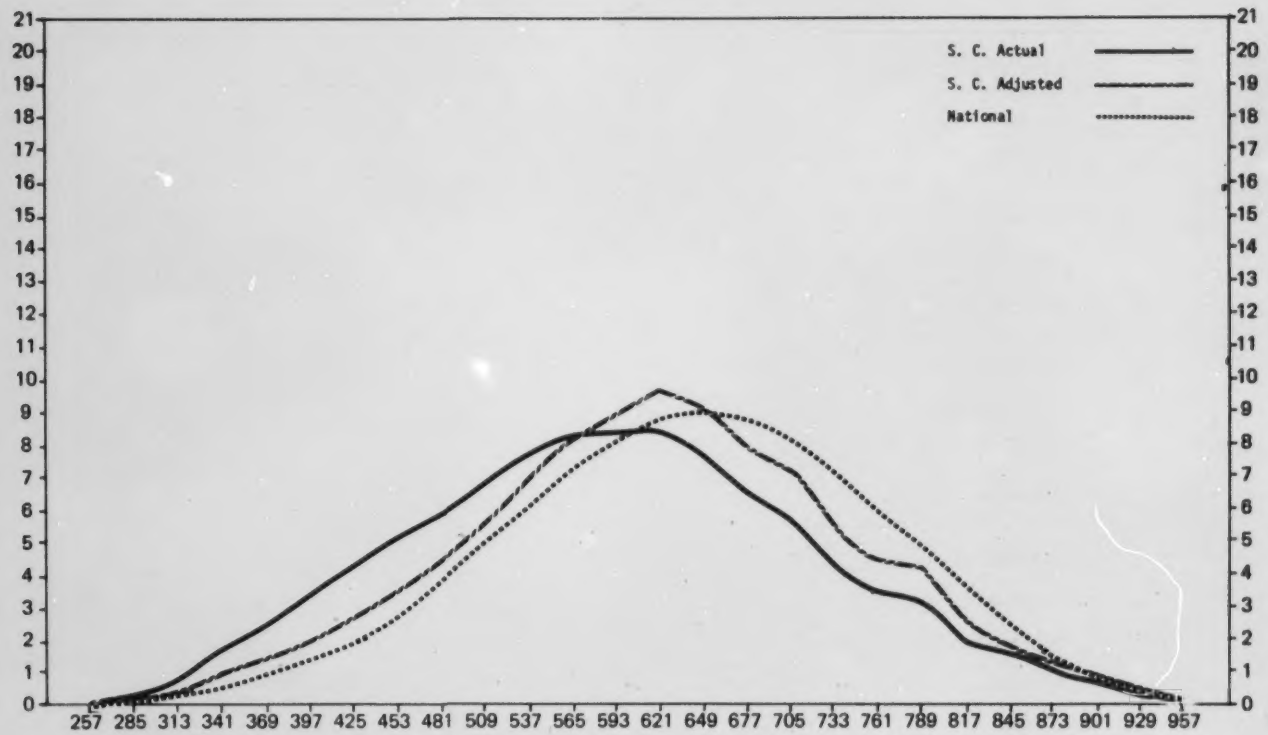


Figure 6.9

Percent Distribution of South Carolina Actual, South Carolina Adjusted, and National Battery Total Scale Scores
Grade 11

Table 6.1

Normal Curve Equivalent Scores for Mean Actual and Adjusted Scale Scores for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Subtests and Tests

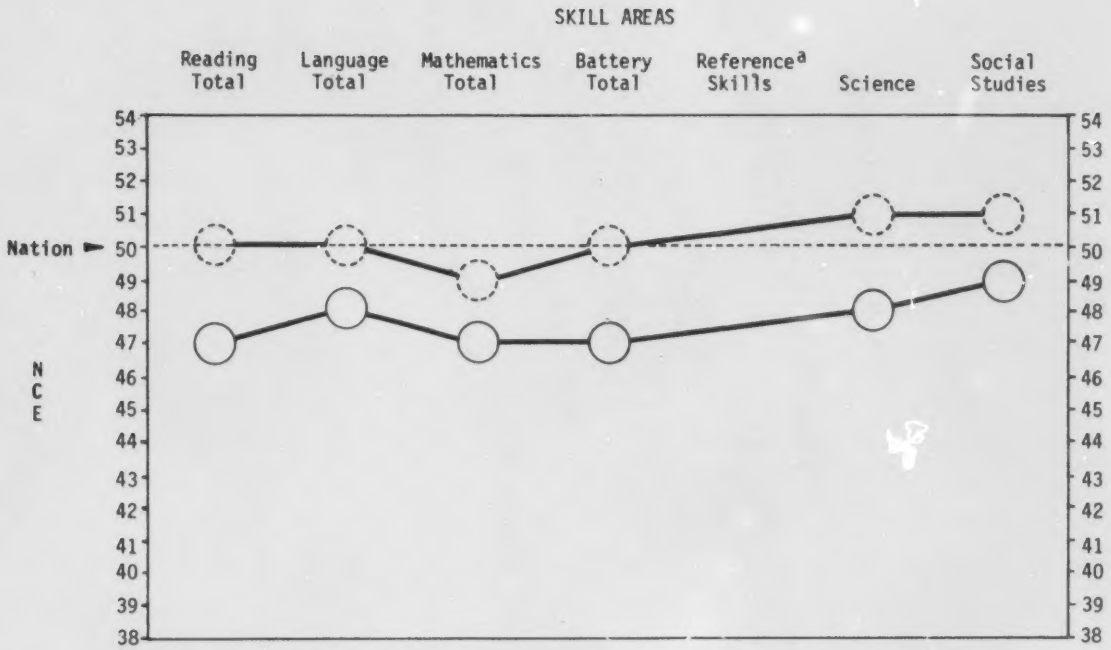
All Students

Subtests and Tests	Grade 3		Grade 6		Grade 11	
	Actual NCE	Adjusted NCE	Actual NCE	Adjusted NCE	Actual NCE	Adjusted NCE
National Mean[a]	50	50	50	50	50	50
Reading Vocabulary	47	50	44	48	41	46
Reading Comprehension	NA[b]	NA[b]	48	51	43	48
Reading Total	47	50	46	50	42	47
Language Mechanics	49	51	48	50	41	50
Language Expression	47	50	47	51	47	45
Spelling	47	49	46	48	48	52
Language Total	48	50	47	50	44	49
Mathematics Computation	48	50	46	48	43	47
Mathematics Concepts	NA[b]	NA[b]	45	48	43	47
Mathematics Application	NA[b]	NA[b]	45	48	41	45
Mathematics Total	47	49	45	48	41	46
Battery Total	47	50	45	48	41	46
Reference Skills	NA[b]	NA[b]	50	53	46	50
Science	48	51	48	52	45	49
Social Studies	49	51	46	50	46	50
n[c]	43,359	43,359	44,216	44,216	39,183	39,183

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referenced as mean NCE's.

[b]Data are not available for these subtests.

[c]n = Total number of students completing any CTBS/S subtest or test.



[a]Data are not available for this subtest.

Figure 6.10

Graph of South Carolina Actual and Adjusted Mean Normal Curve Equivalents for the CTBS/S Skill Areas and Battery Total

Grade 3

and adjusted score groups, Social Studies is the strongest skill area for 3rd graders; and Mathematics is the weakest skill area for 3rd graders.

Grade 6: Figure 6.11 provides the mean NCE's for the actual and racially adjusted data for Grade 6. Although the adjusted NCE scores are higher than their unadjusted counterparts, the difference between the two sets of scores is not constant. The difference between the actual and adjusted Reading NCE scores is quite large compared to the difference between the actual and adjusted NCE scores in the other skill areas. However, there is little difference between the actual and adjusted scores for Reference Skills.

Grade 11: Figure 6.12 provides a graphic display of the relationship between the actual and racially adjusted mean NCE's for Grade 11. The differences between the actual and adjusted means were again in the same direction and were even more pronounced at Grade 11 than at the lower grades. The smallest discrepancies between the actual and adjusted NCE means were in the skill areas of Reference Skills and Science. Although the NCE discrepancies were the same for the skill areas of Reading, Language, and Mathematics and for Battery Total, the lowest performances were in the areas of Mathematics and Battery Total.

Although the results presented in the previous chapters could be reproduced, using the adjusted approach, no further purpose would probably be served by doing so. The point has been made that, when one important characteristic of the national sample, racial composition as an indicator of SES, is taken into account, the performance of the students in South Carolina's educational system is not as low as previous data have suggested. Even if all factors that account for performance differences between South Carolina's students and the nation's students were considered and if South Carolina's students were found to perform as well as the nation's students, the desire to improve South Carolina's educational system should still exist.

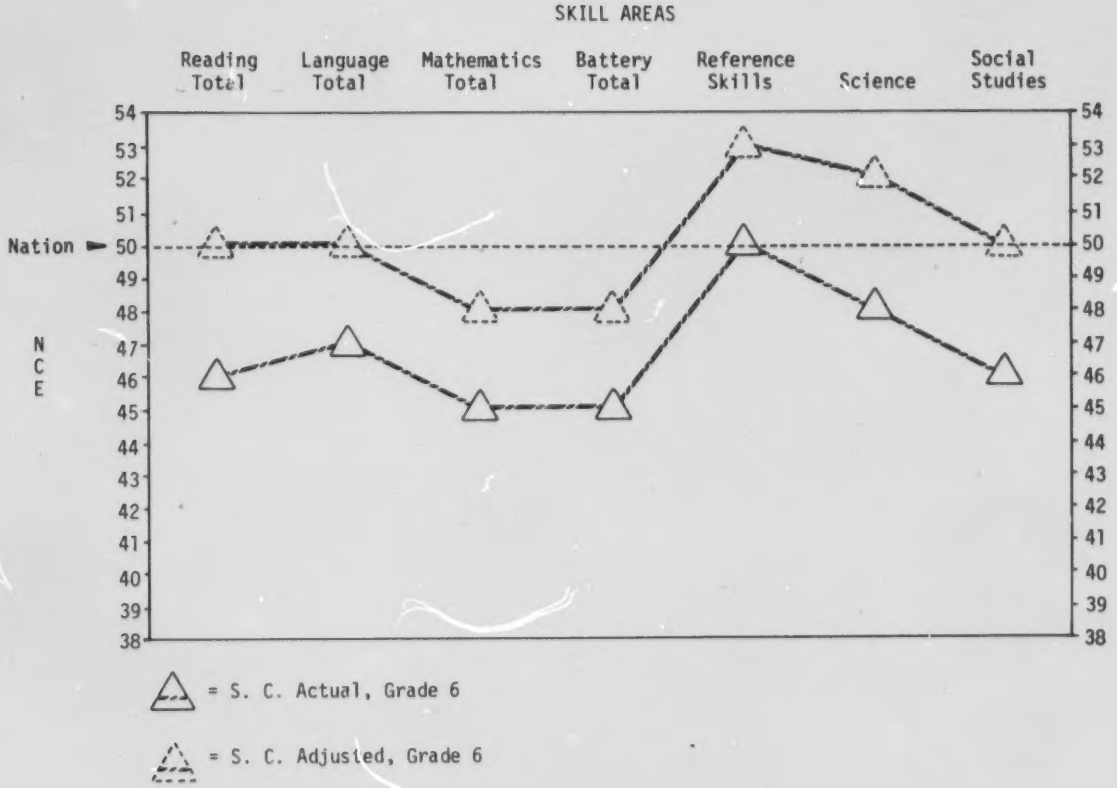


Figure 6.11

Graph of South Carolina Actual and Adjusted Mean Normal Curve Equivalents for the CTBS/S Skill Areas and Battery Total

Grade 6

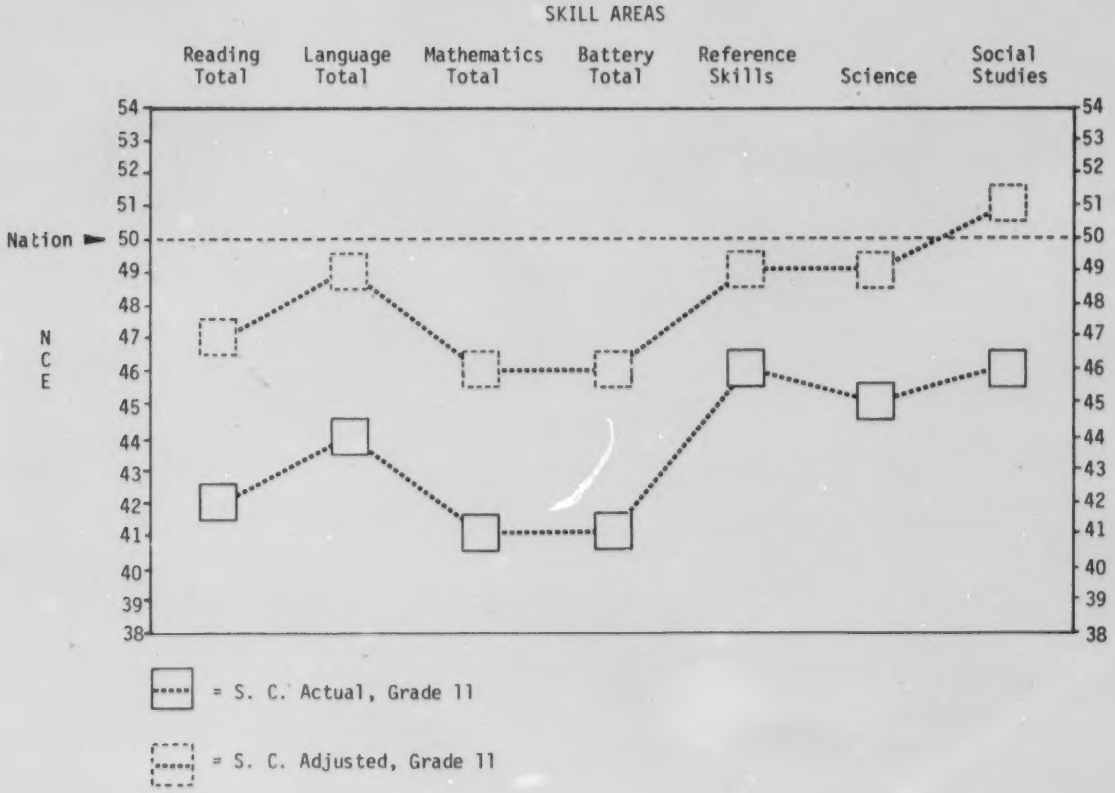


Figure 6.12

Graph of South Carolina Actual and Adjusted Mean Normal Curve Equivalents for the CTBS/S Skill Areas and Battery Total

Grade 11

CHAPTER VII

UTILIZATION OF RIGHT RESPONSE SUMMARY RESULTS FOR INSTRUCTIONAL PURPOSES

Introduction

Chapter VII presents an analysis of the performance of South Carolina 3rd, 6th, and 11th graders in the content and thinking process areas of the various CTBS/S tests and subtests. Specifically, these results can be used to answer the question, "In which specific areas within the various tests and subtests are South Carolina students strongest and weakest relative to the nation?".

In the first section of this chapter, "Procedure for Use of Right Response Summary Results", the use of Right Response Summary results for instructional purposes is described. In the second section, "Limitations on Use of Right Response Summary Results", limitations on the use of the Right Response Summary results are discussed. In the third section, "Right Response Summary Results", the State Right Response Summaries for each grade and test level are used to illustrate the procedure for identifying instructional priorities in the basic skill areas of Reading, Language, and Mathematics.

Procedure for Use of Right Response Summary Results

The Right Response Summary results can be especially useful in providing a basis for planning areas of instructional focus for groups of students. By comparing local scores with the corresponding national or State scores, specific skill area strengths and weaknesses can be determined. As with all types of standardized test data, these test scores are only one of many performance indicators and must be interpreted in combination with other instructional information that the district or school has available. The procedure for determining areas

of instructional priorities involves two stages: (1) a content validity check and (2) an examination of the percent correct data.

Content Validity Check

In order to effectively use the Right Response Summary data, a content validity check should first be conducted to determine which of the specific skills measured by the CTBS/S are actually taught within the local setting. To conduct a content validation of a test for a given grade in a particular district or school, the establishment of a test review committee is recommended. This committee should consist of teachers in the district or school who are familiar with the subject matter taught in the grade of interest. The committee would then content analyze the test by comparing what is tested to what is taught.

To facilitate this process, a content checklist should be developed for committee use. This checklist should consist of the names of the CTBS/S subtests, thinking processes, and content areas, as well as a method of indicating whether or not the thinking processes and content areas were taught. An example of a content checklist based on the Right Response Summary results for CTBS/S, Level 1, is given in Table 7.1. Conducting the content check on the basis of skill categories is more appropriate than conducting the check on the basis of individual test items for several reasons:

1. Teaching the test items is avoided.
2. Since some skills are measured by only one item, the student may have only one chance to demonstrate his proficiency.
3. Some items measure skills that are taught, and other items measure skills that are not taught. Therefore, focusing on a general concept rather than on specific items for instructional improvement is more valid since the general concept gives a more accurate overall picture of achievement.

Each teacher on the committee should check those thinking process and content categories that are taught in his/her grade. The committee should then decide upon a criterion of agreement. For ease of

Table 7.1

Thinking Process and Content Area Checklist for
CTBS/S, Level 1

Subtest	Thinking Process	Content	Taught
Reading Vocabulary	Translation	Recall of Synonym	_____
Reading Comprehension	Recognition/Application	Literal Recall	_____
	Translation	Rewording/Context Clues	_____
	Interpretation	Main Idea	_____
		Descriptive Words	_____
		Conclusions	_____
Spelling	Recognition/Application	Recall of Rule	_____
	Translation	Context Clues	_____
Language Mechanics	Recognition/Application	Punctuation	_____
		Capitalization	_____
Language Expression	Recognition/Application	Usage	_____
	Translation	Diction	_____
	Interpretation	Syntactical Relationships	_____
	Analysis	Organization	_____
Mathematics Computation	Application	Addition	_____
		Subtraction	_____
		Mutliplication	_____
		Division	_____
Mathematics Concepts	Recognition	Number Systems/Properties	_____
		Geometric Relationships	_____
	Translation	Number Systems/Properties	_____
	Interpretation	Number Systems/Properties	_____
		Sets	_____
		Measurement	_____
		Problem Solving	_____
Mathematics Applications	Interpretation	Sets	_____
		Geometric Relationships	_____
		Measurement	_____
		Mathematical Sentences	_____
		Problem Solving	_____
		Reasoning	_____
	Analysis	Problem Solving	_____

discussion, the criterion of 85 percent will be used.

If 85 percent of the teachers agree that a content area was taught, that area would be considered content valid. For example, in the Reading Vocabulary, Translation (Recall of Synonym) Category, suppose that six out of seven of the teachers checked this information as being taught. The percentage of teacher agreement for this category would be 85.7 percent. This high degree of agreement between what is tested and what is taught indicates that this area is content valid; in other words, this area is representative of the district's or school's curriculum for the grade of interest and should be considered in analyzing the test results. The content analysis procedure eliminates from consideration all skill areas with less than 85 percent agreement among teachers.

Examination of the Percent Correct Data

The second stage in the process for determining areas of instructional priorities involves obtaining a copy of the Right Response Summary and Item Analysis for the grade level in the district or school of interest. The percentages from these score reports can be used to compare the district's or school's performance with the performance of the national reference group.

The first step would involve striking through all subtests on the Right Response Summary and Item Analysis which were not considered content valid. Those subtests would be eliminated from any further examination. For the remaining subtests, the percent correct data would be examined. To demonstrate the use of the percent correct data, assume that Reading Vocabulary was considered to be a content valid subtest. The Right Response Summary and Item Analysis for Grade 3, Level 1, for Reading Vocabulary in Table 7.2 is used to demonstrate the procedure.

In Table 7.2, the uppermost category to the extreme left is the subtest or content area classification, Reading Vocabulary. The second category to the left, which is the first indentation under the subtest, is the thinking process area classification, Translation. The third

STATE RIGHT RESPONSE SUMMARY AND ITEM ANALYSIS — DATE 06/02/78 — PAGE 1

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STATE OF SOUTH CAROLINA — TEST DATE 04/78 — 5103

GRADE.. 3.

		LOCAL			NATIONAL REFERENCE GROUP --GRADE--			DIFFERENCE LOC - NAT
		OMITS PCT	WRONG PCT	RIGHT PCT	2.7 RIGHT PCT	3.7 RIGHT PCT	4.7 RIGHT PCT	3.7 - 3.7 RIGHT PCT
READING VOCABULARY TEST SECTION STUDENT COUNT = 32894	**	5	38	57	42	57	68	0
TRANSLATION	**	5	38	57	42	57	68	0
RECALL OF SYNONYM	**	5	38	57	42	57	68	0
01 TINY		0	6	94	85	93	94	1
02 TOSS		0	16	84	70	83	88	1
03 OVER		1	16	84	69	83	90	1
04 OWN		0	19	81	64	80	86	1
05 PRETENDING		2	22	76	58	73	85	3
06 SWIFT		2	18	80	68	79	86	1
07 JOLLY		1	36	63	50	65	77	- 2
08 SELECT		2	31	67	49	67	80	0
09 EXAMINE		2	31	67	46	66	80	1
10 POWERFUL		1	24	77	60	75	84	2
11 BLAZING		2	27	71	57	67	78	4
12 REPAIR		1	39	60	47	62	71	- 2
13 HALT		4	48	48	41	51	64	- 3
14 FASTEN		1	18	81	67	76	80	5
15 BEGINNING		2	28	70	48	69	83	1
16 RAPID		4	54	43	31	45	62	- 2
17 DEFEND		3	42	56	41	63	75	- 7
18 VILLAGE		3	40	58	41	58	70	0
19 EACH		2	39	59	42	57	67	2
20 IDEA		3	41	57	41	53	63	4
21 BENEATH		5	35	61	43	62	77	- 1
22 CERTAIN		3	53	44	31	52	68	- 8
23 THRILLING		4	47	49	36	51	62	- 2
24 DISCOVER		4	36	60	42	59	70	1
25 OPERATING		6	38	56	38	50	61	6
26 PRICE		4	37	59	34	51	63	8
27 AUTUMN		5	52	43	33	47	56	- 4
28 HARBOR		5	63	32	18	35	53	- 3
29 INSTRUMENT		6	60	34	21	36	51	- 2
30 DAMAGE		7	49	44	35	44	51	0
31 AVENUES		9	42	49	29	46	58	3
32 PEACEFUL		8	26	65	44	64	74	1
33 CREATIVE		11	57	32	19	34	49	- 2
34 ADMISSION		11	52	36	22	33	45	3
35 SPARKLED		10	48	42	31	44	52	- 2
36 MAMMOTH		12	51	36	22	37	48	- 1
37 DEFEATED		12	47	41	24	38	53	3
38 VALUE		12	53	35	21	37	54	- 2
39 ARRANGEMENT		14	53	33	20	33	50	0
40 DROWSY		13	34	53	34	52	63	1

** - AVERAGES OF INCLUDED ITEMS

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Table 7.2

State Right Response Summary and Item Analysis
for the Reading Vocabulary Subtest

Grade 3, Level 1

category to the left, which is the second indentation under the subtest, is the specific content area classification, Recall of Synonym.

There are three columns of percentages on the Right Response Summary score report in Table 7.2 that are of interest. These columns are the (1) "LOCAL RIGHT PCT", (2) "NATIONAL REFERENCE GROUP, GRADE 3.7, RIGHT PCT", and (3) "DIFFERENCE LOC-NAT, 3.7 - 3.7, RIGHT PCT".

The numbers under the column headed "LOCAL RIGHT PCT" represent the percentages of students in the district or school answering the items correctly. Likewise, the numbers under the column headed "NATIONAL REFERENCE GROUP, GRADE 3.7, RIGHT PCT" represent the percentages of students in the national group answering the items correctly. The numbers under the column headed "DIFFERENCE LOC-NAT, 3.7 - 3.7, RIGHT PCT" represent the differences between the local and national percentages. Note that, for groups of items, the percentages are the average of the item percentages; whereas, for the individual items, these percentages are the actual percentages of students responding correctly to each item.

The difference between the local percentage correct and the national percentage correct for each category is the key for comparative purposes. For the Reading Vocabulary, Translation (Recall of Synonym) Category, for example, the "LOCAL-RIGHT PCT" is 57; the "NATIONAL REFERENCE GROUP, GRADE 3.7, RIGHT PCT" is 57; and the "DIFFERENCE LOC-NAT, 3.7 - 3.7, RIGHT PCT" is 0. Therefore, the percentage of 3rd grade students in South Carolina answering this group of items correctly was the same as the percentage of students in the nation answering this group of items correctly.

For the categories that were considered content valid, locate the "DIFFERENCE LOC-NAT, 3.7 - 3.7, RIGHT PCT" columns; and make a list of the numbers in the "DIFFERENCE LOC-NAT, 3.7 - 3.7, RIGHT PCT" columns, arranging the numbers from the greatest negative difference to the largest positive difference. The more negative the difference, the weaker the local position compared to the nation. The more positive the difference, the stronger the local position compared to the nation. A zero (0) difference indicates that local performance is equivalent to

national performance. For example, if the five differences were 2, -2, 6, 8, and -8, the arrangement from the greatest negative difference to the greatest positive difference would be -8, -2, 2, 6, and 8.

The weakest areas, those areas of highest instructional priority, would be those categories at the top of the list with the greatest negative difference values. The strongest areas, those areas of lowest instructional priority, would be those categories at the bottom of the list with the greatest positive difference values.

Limitations on Use of Right Response Summary Results

In the past, the State average percentages correct were directly compared to the national average percentages correct for a given grade. In other words, direct comparisons were made between South Carolina data and the national normative data in a given grade. Such a procedure is legitimate to use for all students at the 11th grade level because national normative data are available for Grade 11.7. However, the procedure used is not legitimate to use for all students at the 3rd and 6th grade levels because of functional-level testing. In Grades 3 and 6, a lower level of the CTBS/S than is normally recommended by the publisher (functional-level test) was administered in some schools; and the level of the CTBS/S normally recommended by the publisher (on-level test) was administered in other schools.

For the functional-level tests, the only national normative data available for South Carolina Grade 3, Level C, students were Grade 2.7 normative data; and the only national normative data for South Carolina Grade 6, Level 1, students were Grade 4.7 normative data. Therefore, in the 3rd grade, the low achieving Level C South Carolina students are compared nationally to 2nd graders; and, in the 6th grade, the low achieving Level 1 South Carolina students are compared nationally to 4th graders. For the on-level tests, Grade 3.7 national normative data were available for Level 1 3rd graders; and Grade 6.7 national normative data were available for Level 2 6th graders. Therefore, the high achieving South Carolina 3rd and 6th graders are compared to two

national cross-sections of students which include both low achieving and high achieving 3rd and 6th graders.

Therefore, within each test level, when South Carolina 3rd and 6th grade students are compared to their respective national normative groups, South Carolina's performance should be relatively high since South Carolina students at each level of the test are being compared to a lower achieving national normative group. South Carolina students should appear to have many strengths at each grade level because of this lack of comparability to the national groups. However, the national percentile results presented in Chapter IV illustrated that the combined performance for Level C and Level 1 3rd graders and the combined performance for Level 1 and Level 2 6th graders was below the nation's performance in all skill areas. Therefore, a different approach must be used in interpreting the Right Response Summary results for Grades 3 and 6.

Because of the problems which resulted from functional-level testing in Grades 3 and 6, the national normative data can only be used indirectly as a frame of reference to identify specific areas of weakness within a skill area. In these two grades, direct comparisons to the nation cannot be made. However, in Grade 11, since comparable national normative data are available, direct comparisons to the nation may be made to identify both strengths and weaknesses within a skill area.

Using the nation only as a frame of reference, districts may make interpretations of their local Right Response Summary results which parallel the interpretations of the State results for determining specific weaknesses in Grades 3 and 6 and for determining specific strengths and weaknesses in Grade 11. Districts may also make similar comparisons of their local data to the State data. For Grades 3 and 6, local district comparisons to the State data are presumably more appropriate than local comparisons to the national data since the State results more closely approximate the results for the local population for each level of the test. However, because functional-level testing was implemented on a school basis rather than a district or individual

student basis, caution should be exercised in making district to State comparisons since a few schools within a district may have performed atypically high or low on a given level of the test.

Right Response Summary Results

In this section, the State Right Response Summary results are used to illustrate the procedure outlined for identifying areas of instructional priority in the first section of this chapter. The first stage of this procedure involves conducting a content validity check in order to eliminate from consideration any thinking process/content categories that are not representative of the curriculum for the district or school. The interpretation of the State results assumes that all thinking process/content categories for each grade and test level are content valid at the State level. Thus, all categories are considered in identifying instructional priority areas.

For each of Grades 3, 6, and 11, tables generated from the State Right Response Summary results are presented by test level for the skill areas of Reading, Language, and Mathematics. The Right Response Summary results for Reading, Language, and Mathematics from which Tables 7.3 through 7.7 were developed are presented by grade and test level in Appendix F. Additionally, the Right Response Summary results for Reference Skills, Science, and Social Studies are also presented by grade and test level in Appendix F.

In each of Tables 7.3 through 7.7, the thinking processes and content areas are prioritized within each skill area on the basis of the differences between the local and national (LOC-NAT) percents correct. When comparable national normative data are available for a given grade, a positive difference such as +10 is typically considered a strength relative to the nation; whereas, a negative difference such as -10 is typically considered a weakness relative to the nation. This interpretation of the differences is only applicable for the purposes of the Statewide Testing Program in Grade 11 in which all students were administered Level 4 of the CTBS/S. In Grades 3 and 6 in which the

functional-level testing approach was used, differences cannot be interpreted in terms of strengths and weaknesses. These differences must be interpreted in terms of weaknesses only.

Because the Grade 11 differences (with one exception) for the Reading, Language, and Mathematics thinking process/content categories were negative, indicating weaknesses, the same interpretation used in Grades 3 and 6 is also applicable in Grade 11. In other words, the differences in Tables 7.3 through 7.7 are prioritized in terms of degrees of weakness. In each table, the differences for each category are ordered from the most negative difference to the most positive difference; and a priority rank is assigned to each difference within each skill area. For example, a priority rank of 1 indicates the weakest thinking process/content category; a priority rank of 2 indicates the next weakest category; and so forth. The largest priority rank in each table thus indicates the <u>least</u> <u>weak</u> category for a given skill area. Therefore, the lower in value the priority rank is for a given thinking process/content category, the higher the instructional priority is for that category. Whereas, the higher in value the priority rank is for a given thinking process/content category, the lower the instructional priority is for that category.

For example, Table 7.3 presents the ranking of the thinking process/content categories for Grade 3, Level C, students in the basic skill areas of Reading, Language, and Mathematics. For the skill area of Reading, the thinking process/content category of highest instructional priority (priority rank = 1) at the State level is Interpretation (Main Idea) within the Reading Comprehension/Passages Subtest. The highest instructional priority category for Language is Applications (Subject/Verb Agreement) within the Language Expression Subtest, and the highest instructional priority category for Mathematics is Translation (Number Systems) within the Mathematics Concepts and Application Subtest. Interpretations parallel to the interpretation of Table 7.3 can be easily made for Tables 7.4 through 7.7 by directly observing the priority ranks. In these tables, the thinking process/content categories of highest instructional priority at the

State level are clearly presented for 3rd grade, Level C, students; 3rd grade, Level 1, students; 6th grade, Level 1, students; 6th grade, Level 2, students; and 11th grade, Level 4, students.

Table 7.3

State Instructional Priority Areas
Grade 3, Level C

Reading Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Reading Comprehension/Passages	Interpretation	Main Idea	-2	1
Reading Comprehension/Passages	Translation	Context Clues	1	2
Reading Comprehension/Passages	Interpretation	Conclusion	1	2
Reading Comprehension/Sentences	Application	Semantics/Syntax	1	2
Reading Vocabulary	Translation	Work Definition	2	3
Reading Comprehension/Passages	Recognition	Literal Recall	2	3
Reading Comprehension/Passages	Translation	Rewording	4	4

Language Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Language Expression	Application	Subject/Verb Agreement	-6	1
Language Expression	Application	Verb Form	-1	2
Language Expression	Application	Semantics/Syntax	0	3
Language Mechanics	Application	Punctuation	3	4
Spelling	Recognition	Recall of Rule	4	5
Language Mechanics	Application	Capitalization	10	6

Mathematics Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Mathematics Concepts/ Applications	Translation	Number Systems	4	1
Mathematics Concepts/ Applications	Interpretation	Problem Solving	4	1
Mathematics Concepts/ Applications	Translation	Measurement	5	2
Mathematics Concepts/ Applications	Recognition	Measurement	6	3
Mathematics Concepts/ Applications	Recognition	Number Systems	7	4
Mathematics Computation	Application	Addition	11	5
Mathematics Computation	Application	Subtraction	11	5
Mathematics Computation	Application	Multiplication	24	6

Table 7.4

State Instructional Priority Areas
Grade 3, Level 1

Reading Subtests

Subtests	Process Area	Content Area	Difference	Priority Rank
Reading Vocabulary	Translation	Recall of Synonym	0	1
Reading Comprehension	Interpretation	Conclusions	0	1
Reading Comprehension	Interpretation	Descriptive Words	1	2
Reading Comprehension	Translation	Rewording/Context Clues	2	3
Reading Comprehension	Interpretation	Main Idea	2	3
Reading Comprehension	Recognition/ Application	Literal Recall	3	4

Language Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Spelling	Translation	Context Clues	-2	1
Language Expression	Recognition/ Application	Usage	-2	1
Spelling	Recognition/ Application	Recall of Rule	0	2
Language Mechanics	Recognition/ Application	Capitalization	0	2
Language Expression	Analysis	Organization	1	3
Language Expression	Translation	Diction	2	4
Language Mechanics	Recognition/ Application	Punctuation	3	5
Language Expression	Interpretation	Syntactical Relationships	3	5

Table 7.4 (continued)

State Instructional Priority Areas
Grade 3, Level 1

Mathematics Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Mathematics Concepts	Interpretation	Number Systems/ Properties	-7	1
Mathematics Applications	Interpretation	Mathematical Sentences	-5	2
Mathematics Applications	Interpretation	Problem Solving	-3	3
Mathematics Concepts	Recognition	Number Systems/ Properties	-2	4
Mathematics Applications	Interpretation	Sets	-2	4
Mathematics Concepts	Interpretation	Sets	-1	5
Mathematics Applications	Interpretation	Geometric Relationships	-1	5
Mathematics Applications	Interpretation	Reasoning	-1	5
Mathematics Applications	Analysis	Problem Solving	-1	5
Mathematics Concepts	Interpretation	Measurement	0	6
Mathematics Applications	Interpretation	Measurement	0	6
Mathematics Concepts	Translation	Number Systems/ Properties	1	7
Mathematics Computation	Application	Multiplication	1	7
Mathematics Concepts	Interpretation	Problem Solving	1	7
Mathematics Computation	Application	Addition	2	8
Mathematics Computation	Application	Subtraction	2	8
Mathematics Computation	Application	Division	2	8
Mathematics Concepts	Recognition	Geometric Relationships	2	8

Table 7.5

State Instructional Priority Areas
Grade 6, Level 1

Reading Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Reading Vocabulary	Translation	Recall of Synonym	-4	1
Reading Comprehension	Interpretation	Descriptive Words	-3	2
Reading Comprehension	Interpretation	Main Idea	-1	3
Reading Comprehension	Translation	Rewording/Context Clues	0	4
Reading Comprehension	Interpretation	Conclusion	0	4
Reading Comprehension	Recognition/ Application	Literal Recall	2	5

Language Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Language Mechanics	Recognition/ Application	Capitalization	-1	1
Language Expression	Interpretation	Syntactical Relationships	-1	1
Spelling	Translation	Context Clues	0	2
Language Expression	Translation	Diction	0	2
Spelling	Recognition/ Application	Recall of Rule	1	3
Language Mechanics	Recognition/ Application	Punctuation	1	3
Language Expression	Analysis	Organization	2	4
Language Expression	Recognition/ Application	Usage	8	5

Table 7.5 (continued)

State Instructional Priority Areas
Grade 6, Level 1

Mathematics Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Mathematics Concepts	Recognition	Number Systems/ Properties	-5	1
Mathematics Concepts	Interpretation	Number Systems/ Properties	-4	2
Mathematics Applications	Interpretation	Geometric Relationships	-4	2
Mathematics Concepts	Recognition	Geometric Relationships	-1	3
Mathematics Applications	Interpretation	Measurement	-1	3
Mathematics Applications	Interpretation	Mathematical Sentences	-1	3
Mathematics Applications	Interpretation	Reasoning	-1	3
Mathematics Applications	Interpretation	Sets	-1	3
Mathematics Concepts	Interpretation	Measurement	0	4
Mathematics Concepts	Interpretation	Sets	0	4
Mathematics Concepts	Translation	Number Systems/ Properties	2	5
Mathematics Applications	Interpretation	Problem Solving	2	5
Mathematics Applications	Analysis	Problem Solving	2	5
Mathematics Concepts	Interpretation	Problem Solving	5	6
Mathematics Computation	Application	Subtraction	5	6
Mathematics Computation	Application	Multiplication	5	6
Mathematics Computation	Application	Addition	6	7
Mathematics Computation	Application	Division	9	8

Table 7.6

State Instructional Priority Areas
Grade 6, Level 2

Reading Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Reading Vocabulary	Translation	Recall of Synonym	-5	1
Reading Comprehension	Interpretation	Descriptive Words	-3	2
Reading Comprehension	Analysis	Structure/Style	-3	2
Reading Comprehension	Translation	Rewording	-2	3
Reading Comprehension	Interpretation	Main Idea	-1	4
Reading Comprehension	Interpretation	Conclusion	-1	4
Reading Comprehension	Translation	Context Clues	0	5
Reading Comprehension	Recognition/ Application	Literal Recall	0	5

Language Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Spelling	Translation	Context Clues	-3	1
Language Expression	Translation	Diction	-3	1
Language Expression	Recognition/ Application	Usage	-2	2
Spelling	Recognition/ Application	Recall of Rule	-1	3
Language Expression	Interpretation	Syntactical Relationships	-1	3
Language Mechanics	Recognition/ Application	Capitalization	0	4
Language Mechanics	Recognition/ Application	Punctuation	0	4
Language Expression	Analysis	Organization	1	5

Table 7.6 (continued)

State Instructional Priority Areas
Grade 6, Level 2

Mathematics Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Mathematics Concepts	Interpretation	Problem Solving	-7	1
Mathematics Applications	Analysis	Problem Solving	-7	1
Mathematics Concepts	Interpretation	Number Systems/ Properties	-6	2
Mathematics Concepts	Analysis	Measurement	-6	2
Mathematics Applications	Interpretation	Mathematical Sentences	-6	2
Mathematics Concepts	Interpretation	Measurement	-5	3
Mathematics Applications	Interpretation	Problem Solving	-5	3
Mathematics Applications	Interpretation	Number Systems/ Properties	-4	4
Mathematics Applications	Interpretation	Measurement	-3	5
Mathematics Computation	Application	Addition	-2	6
Mathematics Computation	Application	Division	-2	6
Mathematics Concepts	Interpretation	Mathematical Sentences	-2	6
Mathematics Applications	Interpretation	Reasoning	-2	6
Mathematics Concepts	Interpretation	Sets	-1	7
Mathematics Concepts	Analysis	Problem Solving	-1	7
Mathematics Applications	Interpretation	Sets	-1	7
Mathematics Computation	Application	Multiplication	0	8
Mathematics Concepts	Recognition	Geometric Relationships	0	8
Mathematics Computation	Application	Subtraction	1	9
Mathematics Concepts	Translation	Graphs	2	10
Mathematics Applications	Analysis	Reasoning	2	10

Table 7.7

State Instructional Priority Areas
Grade 11, Level 4

Reading Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Reading Comprehension	Interpretation	Main Idea	-10	1
Reading Vocabulary	Translation	Recall of Synonym	-9	2
Reading Comprehension	Translation	Context Clues	-9	2
Reading Comprehension	Analysis	Structure/Style	-9	2
Reading Comprehension	Recognition/ Application	Literal Recall	-5	3
Reading Comprehension	Translation	Rewording	-5	3
Reading Comprehension	Interpretation	Conclusions	-5	3
Reading Comprehension	Interpretation	Descriptive Words	-4	4

Language Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Language Expression	Translation	Diction	-8	1
Language Expression	Analysis	Organization	-7	2
Spelling	Recognition/ Application	Recall of Rule	-6	3
Language Expression	Recognition/ Application	Usage	-5	4
Language Mechanics	Recognition/ Application	Punctuation	-4	5
Language Mechanics	Recognition/ Application	Capitalization	-4	5
Spelling	Translation	Context Clues	-3	6
Language Expression[a]	Interpretation	Syntactical Relationships	2	

[a]This category was the only one for which the difference was positive, indicating a strength. Therefore, no rank was assigned.

Table 7.7 (continued)

State Instructional Priority Areas
Grade 11, Level 4

Mathematics Subtests

Subtest	Process Area	Content Area	Difference	Priority Rank
Mathematics Concepts	Interpretation	Geometric Relationships	-16	1
Mathematics Applications	Analysis	Problem Solving and Reasoning	-15	2
Mathematics Applications	Interpretation	Measurement	-14	3
Mathematics Applications	Translation	Measurement	-13	4
Mathematics Concepts	Interpretation	Problem Solving and Reasoning	-12	5
Mathematics Concepts	Analysis	Problem Solving and Reasoning	-11	6
Mathematics Applications	Interpretation	Problem Solving and Reasoning	-11	6
Mathematics Computation	Application	Addition	-9	7
Mathematics Computation	Application	Multiplication	-8	8
Mathematics Computation	Application	Division	-8	8
Mathematics Concepts	Recognition	Number Systems/ Properties	-8	8
Mathematics Computation	Application	Subtraction	-7	9
Mathematics Applications	Interpretation	Geometric Relationships	-7	9
Mathematics Concepts	Interpretation	Measurement	-7	9
Mathematics Concepts	Analysis	Geometric Relationships	-6	10
Mathematics Applications	Interpretation	Mathematical Sentences	-6	10
Mathematics Concepts	Analysis	Mathematical Sentences	-4	11
Mathematics Concepts	Interpretation	Number Systems/ Properties	-3	12
Mathematics Concepts	Interpretation	Sets	-2	13

APPENDIX A

Median Grade Equivalents and Median National Percentiles

for South Carolina Students in Grades 3, 6, and 11

for the CTBS/S Subtests and Tests

All Students

Table A.1

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

All Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
National Median	3.7	6.7	11.7	50.0	50.0	50.0
Reading Vocabulary	3.5	5.8	10.2	43.9	38.6	31.5
Reading Comprehension	NA[a]	6.0	10.3	NA[a]	45.2	35.1
Reading Total	3.5	5.9	10.4	44.7	41.4	34.3
Language Mechanics	3.6	5.7	10.5	47.4	44.2	38.5
Language Expression	3.4	5.9	10.2	43.8	44.0	37.3
Spelling	3.5	5.8	10.3	45.4	43.1	36.8
Language Total	3.5	5.9	10.5	46.1	44.0	37.1
Mathematics Computation	3.6	6.0	9.9	45.4	40.4	36.4
Mathematics Concepts	NA[a]	5.7	10.0	NA[a]	37.9	34.5
Mathematics Application	NA[a]	5.8	9.4	NA[a]	39.2	29.3
Mathematics Total	3.5	5.9	9.9	43.8	38.9	34.1
Battery Total	3.5	5.8	10.2	45.3	39.0	32.2
Reference Skills	NA[a]	6.6	110.6	NA[a]	49.0	38.9
Science	3.5	6.3	10.4	46.0	46.2	38.7
Social Studies	3.5	5.7	10.9	46.1	42.2	42.3
n[b]	43,359	44,216	39,183	43,359	44,216	39,183

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

APPENDIX B

South Carolina Actual Battery Total Percent Distributions for Students in Grades 3, 6, and 11

Table B.1

South Carolina Actual Battery Total Percent Distributions for Students in Grades 3, 6, and 11

Scale Score Interval	Grade 3	Grade 6	Grade 11
944-971			0.1
916-943			0.2
888-915			0.7
860-887			1.0
832-859			1.6
804-831			1.8
776-803		0.0	3.2
748-775		0.0	3.4
720-747		0.1	4.3
692-719		0.3	5.8
664-691		0.7	6.5
636-663		1.1	7.7
608-635		1.6	8.5
580-607	0.0	2.8	8.3
552-579	0.3	4.9	8.4
524-551	0.8	6.4	7.8
496-523	1.6	9.6	6.8
468-495	2.7	11.1	5.8
440-467	4.0	11.8	5.1
412-439	5.9	12.7	4.3
384-411	10.3	11.7	3.4
356-383	16.5	9.7	2.4
328-355	19.0	7.1	1.7
300-327	11.9	3.9	0.7
272-299	10.8	2.5	0.2
244-271	8.2	1.4	0.1
216-243	4.7	0.4	
188-215	2.4	0.2	
160-187	0.7	0.0	
132-159	0.2	0.0	
104-131	0.0		
Total	100.0	100.0	100.0

APPENDIX C

Mean Scale Scores and Normal Curve Equivalents for Subgroups of South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Subtests and Tests

Table C.1

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

White Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	390	498	669	54	52	51
Reading Comprehension	NA[b]	524	663	NA[b]	55	52
Reading Total	393	503	656	54	54	52
Language Mechanics	444	516	621	54	53	49
Language Expression	452	528	651	53	54	58
Spelling	422	494	618	51	50	53
Language Total	422	500	629	53	53	53
Mathematics Computation	368	464	593	53	51	51
Mathematics Concepts	NA[b]	477	649	NA[b]	51	51
Mathematics Applications	NA[b]	484	623	NA[b]	51	50
Mathematics Total	370	467	612	52	51	50
Battery Total	365	478	650	53	52	50
Reference Skills	NA[b]	537	678	NA[b]	56	54
Science	418	519	633	55	56	53
Social Studies	411	505	642	55	53	54
n[c]	25,431	24,346	22,853	25,431	24,346	22,853

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

Table C.2

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Nonwhite Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	337	410	521	37	32	26
Reading Comprehension	NA[b]	441	518	NA[b]	38	28
Reading Total	336	417	514	37	34	25
Language Mechanics	392	454	546	41	40	40
Language Expression	396	458	513	38	38	28
Spelling	393	456	521	42	41	30
Language Total	373	440	514	40	38	31
Mathematics Computation	339	423	494	40	39	31
Mathematics Concepts	NA[b]	412	521	NA[b]	36	30
Mathematics Applications	NA[b]	414	486	NA[b]	36	26
Mathematics Total	333	411	490	38	36	26
Battery Total	310	400	502	36	35	26
Reference Skills	NA[b]	457	548	NA[b]	40	33
Science	347	437	514	36	37	32
Social Studies	356	436	524	39	37	34
n[c]	16,529	18,188	15,036	16,529	18,188	15,036

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

Table C.3

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Male Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	366	457	607	46	43	41
Reading Comprehension	NA[b]	479	590	NA[b]	46	40
Reading Total	364	460	591	45	44	40
Language Mechanics	412	473	565	46	44	43
Language Expression	421	488	559	45	45	37
Spelling	399	459	588	44	42	44
Language Total	390	458	563	44	43	40
Mathematics Computation	354	438	551	47	43	43
Mathematics Concepts	NA[b]	446	604	NA[b]	44	44
Mathematics Applications	NA[b]	451	579	NA[b]	44	42
Mathematics Total	352	437	566	46	43	41
Battery Total	336	434	582	45	42	39
Reference Skills	NA[b]	488	616	NA[b]	47	44
Science	389	482	596	48	48	47
Social Studies	387	470	589	48	45	45
n[c]	21,666	21,867	19,582	21,666	21,867	19,582

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]*n* = Total number of students completing any CTBS/S subtest or test.

Table C.4

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Female Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	372	464	615	48	44	42
Reading Comprehension	NA[b]	499	622	NA[b]	50	46
Reading Total	378	473	610	49	47	44
Language Mechanics	436	507	614	52	51	52
Language Expression	439	509	598	50	50	45
Spelling	423	496	612	51	51	50
Language Total	416	491	605	52	51	49
Mathematics Computation	360	456	558	49	48	44
Mathematics Concepts	NA[b]	453	594	NA[b]	46	42
Mathematics Applications	NA[b]	459	561	NA[b]	45	39
Mathematics Total	358	450	563	48	46	41
Battery Total	352	456	601	49	47	42
Reference Skills	NA[b]	518	639	NA[b]	52	48
Science	392	486	576	48	49	43
Social Studies	392	481	603	49	48	48
n[c]	21,599	22,170	19,492	21,599	22,170	19,492

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

Table C.5

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Non-Title I Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	386	484	NA[b]	52	49	NA[b]
Reading Comprehension	NA[b]	513	NA[b]	NA[b]	53	NA[b]
Reading Total	390	491	NA[b]	53	51	NA[b]
Language Mechanics	442	509	NA[b]	54	52	NA[b]
Language Expression	447	519	NA[b]	52	52	NA[b]
Spelling	425	495	NA[b]	52	50	NA[b]
Language Total	422	494	NA[b]	53	52	NA[b]
Mathematics Computation	366	460	NA[b]	52	49	NA[b]
Mathematics Concepts	NA[b]	468	NA[b]	NA[b]	49	NA[b]
Mathematics Applications	NA[b]	475	NA[b]	NA[b]	49	NA[b]
Mathematics Total	367	460	NA[b]	51	49	NA[b]
Battery Total	363	468	NA[b]	52	50	NA[b]
Reference Skills	NA[b]	528	NA[b]	NA[b]	55	NA[b]
Science	409	506	NA[b]	53	53	NA[b]
Social Studies	406	496	NA[b]	53	51	NA[b]
n[c]	32,086	32,725	NA[b]	32,086	32,725	NA[b]

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

Table C.6

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	315	385	NA[b]	30	26	NA[b]
Reading Comprehension	NA[b]	411	NA[b]	NA[b]	32	NA[b]
Reading Total	312	389	NA[b]	30	28	NA[b]
Language Mechanics	365	428	NA[b]	34	35	NA[b]
Language Expression	374	434	NA[b]	32	32	NA[b]
Spelling	367	424	NA[b]	33	34	NA[b]
Language Total	344	410	NA[b]	31	31	NA[b]
Mathematics Computation	327	404	NA[b]	35	34	NA[b]
Mathematics Concepts	NA[b]	389	NA[b]	NA[b]	31	NA[b]
Mathematics Applications	NA[b]	389	NA[b]	NA[b]	30	NA[b]
Mathematics Total	318	390	NA[b]	32	30	NA[b]
Battery Total	284	370	NA[b]	30	28	NA[b]
Reference Skills	NA[b]	421	NA[b]	NA[b]	33	NA[b]
Science	330	414	NA[b]	32	32	NA[b]
Social Studies	338	410	NA[b]	34	31	NA[b]
n[c]	10,267	10,213	NA[b]	10,267	10,213	NA[b]

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

Table C.7

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Reading Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	310	378	NA[b]	29	25	NA[b]
Reading Comprehension	NA[b]	404	NA[b]	NA[b]	31	NA[b]
Reading Total	306	382	NA[b]	28	27	NA[b]
Language Mechanics	362	425	NA[b]	33	34	NA[b]
Language Expression	370	429	NA[b]	30	31	NA[b]
Spelling	362	420	NA[b]	32	33	NA[b]
Language Total	338	406	NA[b]	30	30	NA[b]
Mathematics Computation	326	404	NA[b]	34	33	NA[b]
Mathematics Concepts	NA[b]	386	NA[b]	NA[b]	30	NA[b]
Mathematics Applications	NA[b]	386	NA[b]	NA[b]	29	NA[b]
Mathematics Total	316	388	NA[b]	31	30	NA[b]
Battery Total	279	365	NA[b]	28	27	NA[b]
Reference Skills	NA[b]	414	NA[b]	NA[b]	32	NA[b]
Science	326	409	NA[b]	31	31	NA[b]
Social Studies	334	405	NA[b]	33	30	NA[b]
n[c]	8,210	7,692	NA[b]	8,210	7,692	NA[b]

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

Table C.8

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Mathematics Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	315	384	NA[b]	31	26	NA[b]
Reading Comprehension	NA[b]	410	NA[b]	NA[b]	32	NA[b]
Reading Total	312	388	NA[b]	30	28	NA[b]
Language Mechanics	364	425	NA[b]	34	34	NA[b]
Language Expression	374	432	NA[b]	32	32	NA[b]
Spelling	368	423	NA[b]	34	33	NA[b]
Language Total	344	409	NA[b]	31	30	NA[b]
Mathematics Computation	324	400	NA[b]	34	32	NA[b]
Mathematics Concepts	NA[b]	386	NA[b]	NA[b]	30	NA[b]
Mathematics Applications	NA[b]	385	NA[b]	NA[b]	29	NA[b]
Mathematics Total	315	386	NA[b]	31	29	NA[b]
Battery Total	282	368	NA[b]	29	27	NA[b]
Reference Skills	NA[b]	417	NA[b]	NA[b]	33	NA[b]
Science	327	411	NA[b]	31	32	NA[b]
Social Studies	336	408	NA[b]	33	31	NA[b]
n[c]	6,408	7,256	NA[b]	6,408	7,256	NA[b]

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scores but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]*n* = Total number of students completing any CTBS/S subtest or test.

Table C.9

Mean Scale Scores and Normal Curve Equivalents
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Reading and Mathematics Students

Subtests and Tests	Mean Scale Scores			Normal Curve Equivalents[a]		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	315	385	NA[b]	30.4	26.3	NA[b]
Reading Comprehension	NA[b]	411	NA[b]	NA[a]	31.9	NA[b]
Reading Total	312	389	NA[b]	29.5	28.2	NA[b]
Language Mechanics	365	428	NA[b]	34.3	34.7	NA[b]
Language Expression	374	434	NA[b]	31.9	32.4	NA[b]
Spelling	367	424	NA[b]	33.2	33.5	NA[b]
Language Total	344	410	NA[b]	31.4	30.6	NA[b]
Mathematics Computation	327	404	NA[b]	34.9	33.5	NA[b]
Mathematics Concepts	NA[b]	389	NA[b]	NA[a]	30.6	NA[b]
Mathematics Applications	NA[b]	389	NA[b]	NA[a]	29.9	NA[b]
Mathematics Total	318	390	NA[b]	32.2	30.3	NA[b]
Battery Total	284	370	NA[b]	29.8	27.9	NA[b]
Reference Skills	NA[b]	421	NA[b]	NA[a]	33.4	NA[b]
Science	330	414	NA[b]	31.5	32.0	NA[b]
Social Studies	338	410	NA[b]	33.6	30.9	NA[b]
n[b]	4,351	4,735	NA[b]	4,351	4,375	NA[b]

[a]The national mean normal curve equivalent (NCE) is 50 for all CTBS/S subtests and tests. NCE's were converted from mean scale scroes but are referred to as mean NCE's.

[b]Data for these subtests are not available.

[c]n = Total number of students completing any CTBS/S subtest or test.

APPENDIX D

Median Grade Equivalents and Median National Percentiles for Subgroups of South Carolina Students in Grades 3, 6, and 11

Table D.1

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

White Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	4.0	7.0	11.9	57.0	55.0	52.0
Reading Comprehension	NA[a]	7.6	12.0	NA[a]	58.3	53.4
Reading Total	4.0	7.2	12.0	58.6	56.1	53.2
Language Mechanics	4.3	7.2	11.8	59.7	53.3	51.1
Language Expression	4.0	7.7	13.2	56.0	58.1	59.6
Spelling	3.8	6.8	12.6	52.6	50.9	56.4
Language Total	4.1	7.2	12.5	56.6	55.3	55.9
Mathematics Computation	3.8	6.7	11.7	53.8	50.8	49.6
Mathematics Concepts	NA[a]	6.6	12.2	NA[a]	49.4	53.1
Mathematics Application	NA[a]	7.1	11.8	NA[a]	54.5	50.8
Mathematics Total	3.8	6.6	11.6	53.1	50.0	49.0
Battery Total	3.9	7.0	11.7	54.1	54.0	49.8
Reference Skills	NA[a]	8.6	12.4	NA[a]	65.6	56.3
Science	4.2	7.9	12.4	60.2	61.1	56.4
Social Studies	4.2	7.5	13.0	60.7	56.1	60.2
n[b]	25,431	24,346	22,853	25,431	24,346	22,853

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.2

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Nonwhite Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	2.7	4.4	7.2	26.1	19.3	10.5
Reading Comprehension	NA[a]	4.7	7.6	NA[a]	29.2	14.0
Reading Total	2.8	4.5	7.5	26.6	22.9	11.0
Language Mechanics	3.0	4.3	8.9	34.7	30.3	23.4
Language Expression	2.7	4.3	6.6	27.0	28.6	19.5
Spelling	3.2	5.2	6.7	38.1	33.6	14.2
Language Total	2.9	4.7	7.9	30.7	29.0	18.0
Mathematics Computation	3.3	5.5	7.7	32.7	31.6	18.0
Mathematics Concepts	NA[a]	4.6	8.0	NA[a]	25.6	15.2
Mathematics Application	NA[a]	4.6	6.8	NA[a]	24.2	12.2
Mathematics Total	3.1	5.1	7.4	30.1	25.9	12.7
Battery Total	2.9	4.7	7.7	28.6	23.1	11.9
Reference Skills	NA[a]	4.9	8.6	NA[a]	31.4	21.8
Science	2.7	4.7	7.2	25.5	27.3	17.4
Social Studies	2.8	4.7	4.8	28.6	27.4	22.5
n[b]	16,529	18,188	15,036	16,529	18,188	15,036

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.3

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Male Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	3.4	5.7	10.3	40.2	36.8	32.7
Reading Comprehension	NA[a]	5.8	10.0	NA[a]	42.0	32.2
Reading Total	3.4	5.8	10.2	40.5	39.8	31.9
Language Mechanics	3.4	4.8	10.0	42.7	36.5	31.1
Language Expression	3.3	5.4	9.7	39.8	39.6	33.3
Spelling	3.2	5.3	10.1	38.3	35.5	34.1
Language Total	3.2	5.3	10.0	39.4	36.6	30.3
Mathematics Computation	3.5	5.7	9.8	42.1	36.9	36.2
Mathematics Concepts	NA[a]	5.6	10.3	NA[a]	37.4	37.2
Mathematics Application	NA[a]	5.8	10.1	NA[a]	38.7	35.9
Mathematics Total	3.5	5.7	10.0	41.8	36.2	36.0
Battery Total	3.4	5.5	10.0	41.2	34.4	30.0
Reference Skills	NA[a]	5.8	10.8	NA[a]	42.3	40.6
Science	3.5	6.3	11.0	45.7	45.9	43.5
Social Studies	3.4	5.5	10.7	43.1	39.3	41.1
n[b]	21,666	21,867	19,582	21,666	21,867	19,582

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.4

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Female Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	3.5	5.8	10.3	44.3	38.9	33.3
Reading Comprehension	NA[a]	6.2	10.8	NA[a]	47.3	41.4
Reading Total	3.7	6.1	10.7	49.0	42.9	37.6
Language Mechanics	3.9	7.2	11.8	53.4	52.9	50.9
Language Expression	3.6	6.5	11.8	47.2	48.9	50.8
Spelling	3.8	6.8	11.1	52.8	51.1	44.8
Language Total	3.9	6.7	11.2	53.2	50.9	45.2
Mathematics Computation	3.7	6.3	10.1	49.5	45.4	38.2
Mathematics Concepts	NA[a]	6.1	10.3	NA[a]	42.6	36.6
Mathematics Application	NA[a]	6.1	9.6	NA[a]	42.6	30.5
Mathematics Total	3.6	6.0	9.9	45.3	42.1	34.3
Battery Total	3.6	6.2	10.4	48.5	42.9	35.3
Reference Skills	NA[a]	7.4	11.5	NA[a]	56.6	47.7
Science	3.5	6.3	10.4	46.3	46.4	38.7
Social Studies	3.6	6.0	11.4	48.0	44.9	46.7
n[b]	21,599	22,170	19,492	21,599	22,170	19,492

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.5

Median Grade Equivalents and Median National Percentiles for South Carolina Students in Grades 3, 6, and 11 for the CTBS/S Subtests and Tests

Non-Title I Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	3.9	6.5	NA[a]	53.8	48.1	NA[a]
Reading Comprehension	NA[a]	7.3	NA[a]	NA[a]	54.8	NA[a]
Reading Total	3.9	6.8	NA[a]	55.8	51.7	NA[a]
Language Mechanics	4.3	7.2	NA[a]	59.5	53.0	NA[a]
Language Expression	4.0	7.1	NA[a]	55.5	53.1	NA[a]
Spelling	3.8	6.8	NA[a]	53.1	51.0	NA[a]
Language Total	4.1	7.0	NA[a]	56.3	52.9	NA[a]
Mathematics Computation	3.7	6.5	NA[a]	51.9	48.2	NA[a]
Mathematics Concepts	NA[a]	6.6	NA[a]	NA[a]	48.7	NA[a]
Mathematics Application	NA[a]	6.4	NA[a]	NA[a]	46.4	NA[a]
Mathematics Total	3.7	6.4	NA[a]	51.5	46.8	NA[a]
Battery Total	3.8	6.6	NA[a]	52.9	49.2	NA[a]
Reference Skills	NA[a]	7.4	NA[a]	NA[a]	57.3	NA[a]
Science	4.0	7.3	NA[a]	56.2	55.3	NA[a]
Social Studies	4.0	6.9	NA[a]	57.0	51.8	NA[a]
n[b]	32,086	32,725	NA[a]	32,086	32,725	NA[a]

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.6

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	2.3	3.8	NA[a]	18.0	13.0	NA[a]
Reading Comprehension	NA[a]	3.9	NA[a]	NA[a]	20.0	NA[a]
Reading Total	2.3	3.9	NA[a]	16.0	15.0	NA[a]
Language Mechanics	2.5	3.8	NA[a]	23.0	24.0	NA[a]
Language Expression	2.3	3.5	NA[a]	19.0	20.0	NA[a]
Spelling	2.5	3.8	NA[a]	20.0	22.0	NA[a]
Language Total	2.5	3.8	NA[a]	19.0	19.0	NA[a]
Mathematics Computation	3.1	4.9	NA[a]	25.0	22.0	NA[a]
Mathematics Concepts	NA[a]	3.9	NA[a]	NA[a]	18.0	NA[a]
Mathematics Application	NA[a]	4.0	NA[a]	NA[a]	18.0	NA[a]
Mathematics Total	2.8	4.5	NA[a]	21.0	17.0	NA[a]
Battery Total	2.6	4.1	NA[a]	17.0	15.0	NA[a]
Reference Skills	NA[a]	4.3	NA[a]	NA[a]	23.0	NA[a]
Science	2.3	4.0	NA[a]	18.0	19.0	NA[a]
Social Studies	2.5	4.1	NA[a]	22.0	19.0	NA[a]
n[b]	10,267	10,213	NA[a]	10,267	10,213	NA[a]

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.7

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Reading Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	2.2	3.6	NA[a]	15.8	11.5	NA[a]
Reading Comprehension	NA[a]	3.8	NA[a]	NA[a]	18.5	NA[a]
Reading Total	2.2	3.7	NA[a]	15.2	14.1	NA[a]
Language Mechanics	2.5	3.8	NA[a]	22.0	23.6	NA[a]
Language Expression	2.2	3.5	NA[a]	17.1	19.0	NA[a]
Spelling	2.4	3.7	NA[a]	19.0	20.8	NA[a]
Language Total	2.4	3.7	NA[a]	17.5	17.6	NA[a]
Mathematics Computation	3.1	4.9	NA[a]	23.6	22.0	NA[a]
Mathematics Concepts	NA[a]	3.8	NA[a]	NA	17.1	NA[a]
Mathematics Application	NA[a]	3.9	NA	NA	16.2	NA[a]
Mathematics Total	2.8	4.4	NA[a]	19.8	16.8	NA[a]
Battery Total	2.5	3.9	NA[a]	15.2	14.0	NA[a]
Reference Skills	NA[a]	4.0	NA[a]	NA[a]	19.5	NA[a]
Science	2.2	4.0	NA[a]	17.2	19.1	NA[a]
Social Studies	2.4	4.0	NA[a]	20.4	18.0	NA[a]
n[b]	8,210	7,692	NA[a]	8,210	7,692	NA[a]

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.8

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Mathematics Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	2.3	3.8	NA[a]	17.8	12.9	NA[a]
Reading Comprehension	NA[a]	3.8	NA[a]	NA[a]	19.2	NA[a]
Reading Total	2.3	3.8	NA[a]	16.4	15.2	NA[a]
Language Mechanics	2.5	3.8	NA[a]	22.3	23.7	NA[a]
Language Expression	2.3	3.5	NA[a]	19.2	19.3	NA[a]
Spelling	2.6	3.7	NA[a]	21.7	21.5	NA[a]
Language Total	2.5	3.7	NA[a]	19.2	18.4	NA[a]
Mathematics Computation	3.0	4.8	NA[a]	21.9	20.1	NA[a]
Mathematics Concepts	NA[a]	3.8	NA[a]	NA[a]	17.2	NA[a]
Mathematics Application	NA[a]	3.9	NA[a]	NA[a]	16.2	NA[a]
Mathematics Total	2.8	4.4	NA[a]	19.6	16.4	NA[a]
Battery Total	2.5	4.0	NA[a]	16.0	14.4	NA[a]
Reference Skills	NA[a]	4.1	NA[a]	NA[a]	21.1	NA[a]
Science	2.2	4.0	NA[a]	17.2	19.2	NA[a]
Social Studies	2.5	4.0	NA[a]	21.6	18.3	NA[a]
n[b]	6,408	7,256	NA[a]	6,408	7,256	NA[a]

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

Table D.9

Median Grade Equivalents and Median National Percentiles
for South Carolina Students in Grades 3, 6, and 11
for the CTBS/S Subtests and Tests

Title I Reading and Mathematics Students

Subtests and Tests	Median Grade Equivalents			Median National Percentiles		
	Grade 3	Grade 6	Grade 11	Grade 3	Grade 6	Grade 11
Reading Vocabulary	2.2	3.6	NA[a]	1[illegible].1	10.8	NA[a]
Reading Comprehension	NA[a]	3.6	NA[a]	NA[a]	16.8	NA[a]
Reading Total	2.2	3.6	NA[a]	13.7	12.0	NA[a]
Language Mechanics	2.2	3.4	NA[a]	18.3	19.3	NA[a]
Language Expression	2.2	3.3	NA[a]	16.2	17.4	NA[a]
Spelling	2.4	3.5	NA[a]	18.6	18.5	NA[a]
Language Total	2.4	3.5	NA[a]	16.2	16.0	NA[a]
Mathematics Computation	3.0	4.7	NA[a]	20.6	19.0	NA[a]
Mathematics Concepts	NA[a]	3.8	NA[a]	NA[a]	16.7	NA[a]
Mathematics Application	NA[a]	3.9	NA[a]	NA[a]	15.6	NA[a]
Mathematics Total	2.7	4.2	NA[a]	17.0	14.9	NA[a]
Battery Total	2.4	3.8	NA[a]	13.2	12.3	NA[a]
Reference Skills	NA[a]	4.0	NA[a]	NA[a]	18.7	NA[a]
Science	2.0	4.0	NA[a]	14.5[a]	18.6	NA[a]
Social Studies	2.2	4.0	NA[a]	17.2	17.6	NA[a]
n[b]	4,351	4,735	NA[a]	4,351	4,735	NA[a]

[a]Data on these subtests are not available.

[b]n = Total number of students completing any CTBS/S subtest or test.

APPENDIX E

South Carolina Actual and Adjusted Battery Total
Percent Distributions for Students in Grades 3, 6, and 11

Table E.1

South Carolina Actual and Adjusted
Battery Total Percent Distributions

Grade 3

Scale Score Interval	Nation	South Carolina	
		Actual	Adjusted[b]
580-607[a]	[	0.0	0.0
552-579[a]		0.3	0.4
524-551[a]	3.4	0.8	1.2
496-523[a]	]	1.6	2.1
468-495	3.5	2.7	3.6
440-467	6.2	4.0	5.2
412-439	9.5	5.9	7.4
384-411	12.5	10.3	17.1
356-383	15.0	16.5	18.1
328-355	14.5	19.0	18.8
300-327	12.8	11.9	10.7
272-299	9.9	10.8	8.5
244-271	6.4	8.2	6.3
216-243	3.7	4.7	3.5
188-215[a]	[	2.4	1.6
160-187[a]		0.7	0.4
132-159[a]	2.6	0.2	0.1
104-131[a]	]	0.0	0.0
Total	100.0	100.0	100.0

[a]Data were not available for these individual scale score intervals. Therefore, the bracketed percentages of 3.4 and 2.6 represent the sum of the percentages for the four highest scale score intervals and the sum of the percentages of the four lowest scale score intervals, respectively. These values were obtained by interpolation using scale score to percentile rank tables which ranged from 1 to 99; therefore, obtaining percentages in the extreme scale score intervals was not possible.

[b]Weights were 78.6% and 21.4% for white and nonwhite subgroups, respectively. The corresponding South Carolina racial percentages were 60.6% and 39.4%.

Table E.2

South Carolina Actual and Adjusted
Battery Total Percent Distributions

Grade 6

Scale Score Interval	Nation	South Carolina	
		Actual	Adjusted[b]
776-803[a]	[	0.0	0.0
748-775[a]		0.0	0.0
720-747[a]		0.1	0.1
692-719[a]	2.0	0.3	0.4
664-691[a]	]	0.7	1.0
636-663	1.6	1.1	1.6
608-635	2.9	1.6	2.2
580-607	4.7	2.8	3.9
552-579	7.0	4.9	6.4
524-551	9.3	6.4	8.2
496-523	11.0	9.6	11.7
468-495	12.0	11.1	12.6
440-467	11.8	11.8	12.3
412-439	10.7	12.7	12.0
384-411	9.0	11.7	9.9
356-383	6.8	9.7	7.2
328-355	4.8	7.1	4.9
300-327	3.2	3.9	2.7
272-299	1.9	2.5	1.7
244-271[a]	[	1.4	0.8
216-243[a]	1.3	0.4	0.3
188-215[a]		0.2	0.1
160-187[a]	]	0.0	0.0
Total	100.0	100.0	100.1

[a]Data were not available for these individual scale score intervals. Therefore, the bracketed percentages of 2.0 and 1.3 represent the sum of the percentages for the three highest scale score intervals and the sum of the percentages for the three lowest scale score intervals, respectively. These values were obtained by interpolation using scale score to percentile rank tables which ranged from 1 to 99; therefore, obtaining percentages in the extreme scale score intervals was not possible.

[b]Weights were 78.0% and 22.0% for the white and nonwhite subgroups, respectively. The corresponding South Carolina racial percentages were 57.2% and 42.8%.

Table E.3

South Carolina Actual and Adjusted
Battery Total Percent Distributions

Grade 11

Scale Score Interval	Nation	South Carolina	
		Actual	Adjusted[b]
944-971[a]	[2.1]	0.1	0.1
916-943[a]		0.2	0.3
888-915[a]		0.7	0.9
860-887	1.6	1.0	1.2
832-859	2.5	1.6	2.1
804-831	3.6	1.8	2.4
776-803	4.9	3.2	4.2
748-775	5.9	3.4	4.3
720-747	7.3	4.3	5.5
692-719	8.3	5.8	7.3
664-691	8.7	6.5	7.9
636-663	9.0	7.7	9.1
608-635	8.8	8.5	9.4
580-607	8.0	8.3	8.8
552-579	7.3	8.4	8.3
524-551	6.0	7.8	7.0
496-523	5.0	6.8	5.6
468-495	3.9	5.8	4.4
440-467	2.8	5.1	3.6
412-439	2.0	4.3	2.7
384-411[a]	[2.3]	3.4	2.0
356-383[a]		2.4	1.4
328-355[a]		1.7	1.0
300-327[a]		0.7	0.4
272-299[a]		0.2	0.1
244-271[a]		0.1	0.0
Total	100.0	100.0	100.0

[a]Data were not available for these individual scale score intervals. Therefore, the bracketed percentages of 2.1 and 2.3 represent the sum of the percentages for the three highest scale score intervals and the sum of the percentages for the six lowest scale score intervals, respectively. These values were obtained by interpolation using scale score to percentile rank tables which ranged from 1 to 99; therefore, obtaining percentages in the extreme scale score intervals was not possible.

[b]Weights were 80.5% and 19.5% for the white and nonwhite subgroups, respectively. The corresponding South Carolina racial percentages were 60.3% and 39.7%.

APPENDIX F

Right Response Summary Results for Grades 3, 6, and 11 by Test Level

Table F.1

Right Response Summary Results

Grade 3, Level C

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 3.7	State 3.7	Nation 2.7	
Reading Vocabulary	33		76	74	(2)
Translation	33		76	74	(2)
Word Definition	33		76	74	(2)
Reading Comprehension/Sentences	23		73	72	(1)
Application	23		73	72	(1)
Semantics/Syntax	23		73	72	(1)
Reading Comprehension/Passages	18		72	70	(2)
Recognition	8		76	74	(2)
Literal Recall	8		76	74	(2)
Translation	4		73	71	(2)
Rewording	2		74	70	(4)
Context clues	2		72	71	(1)
Interpretation	6		66	66	(0)
Main Idea	1		65	67	(-2)
Conclusions	5		67	66	(1)
Language Expression	22		72	73	(-1)
Application	22		72	73	(-1)
Semantics/Syntax	11		72	72	(0)
Verb Form	7		73	74	(-1)
Subject/Verb Agreement	4		69	75	(-6)
Spelling	34		85	81	(4)
Recognition	34		85	81	(4)
Recall of Rule	34		85	81	(4)
Language Mechanics	23		59	53	(6)
Application	23		59	53	(6)
Puncutation	11		54	51	(3)
Capitalization	12		64	54	(10)
Mathematics Computation	28		79	65	(14)
Application	28		79	65	(14)
Addition	10		78	67	(11)
Subtraction	10		75	64	(11)
Multiplication	8		87	63	(24)
Mathematics Concepts/Applications	25		74	70	(4)
Recognition	5		74	67	(7)
Number Systems	2		71	64	(7)
Measurement	3		75	69	(6)
Translation	14		76	71	(5)
Number Systems	10		78	74	(4)
Measurement	4		69	64	(5)
Interpretation	6		73	59	(4)
Problem Solving	6		73	69	(4)

[a]These differences are set off in parentheses to emphasize the point that these differences were not provided on the Right Response Summary results for Grade 3,Level C, students because comparable national normative data were not available.

Table F.1 (continued)

Right Response Summary Results

Grade 3, Level C

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 3.7	State 3.7	Nation 2.7	
Science	30		58	59	(-1)
Recognition	8		58	57	(1)
Chemistry	2		58	63	(-5)
Physics	3		49	50	(-1)
Earth Science	1		54	50	(4)
Ecology	1		63	50	(13)
Zoology	1		80	80	(0)
Classification	7		66	63	(3)
Physics	1		39	33	(6)
Earth Science	1		58	58	(0)
Botany	2		67	65	(2)
General	3		77	73	(4)
Quantification	5		51	54	(-3)
Ecology	1		54	59	(-5)
Zoology	2		50	48	(2)
General	2		50	58	(-8)
Interpretation	9		56	58	(-2)
Chemistry	1		83	87	(-4)
Physics	7		50	53	(-3)
Zoology	1		73	68	(5)
Prediction	1		74	72	(2)
General	1		74	72	(2)
Social Studies	30		60	57	(3)
Recognition	12		65	62	(3)
Physical Environment	5		61	55	(6)
Social Environment	1		81	79	(2)
Political/Economic Environment	2		67	58	(9)
History	4		67	68	(-1)
Translation	10		57	52	(5)
Physical Environment	9		55	51	(4)
History	1		70	65	(5)
Interpretation	5		49	52	(-3)
Physical Environment	2		44	48	(-4)
Political/Economic Environment	2		58	60	(-2)
History	1		38	42	(-4)
Application	2		71	69	(2)
Social Environment	1		61	57	(4)
Political Economic Environment	1		82	80	(2)
Analysis	1		64	66	(-2)
Physical Environment	1		64	66	(-2)

[a]These differences are set off in parentheses to emphasize the point that these differences were not provided on the Right Response Summary results for Grade 3, Level C, students because comparable national normative data were not available.

Table F.2 (continued)

Right Response Summary Results

Grade 3, Level 1

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 3.7	State 3.7	Nation 3.7	
Reference Skills	20		57	54	3
Recognition	10		56	54	2
Parts of a Book	3		41	38	3
Dictionary Skills	7		62	61	1
Application	10		58	54	4
Parts of a Book	2		54	52	2
Library Use	8		59	54	5
Science	37		51	50	1
Recognition	6		37	39	-2
Earth Science	3		31	35	-4
Zoology	3		43	43	0
Classification	7		56	54	2
Chemistry	2		48	45	3
Physics	1		70	67	3
Botany	1		48	43	5
Zoology	3		61	58	3
Quantification	5		60	58	2
Physics	1		50	46	4
Zoology	4		63	61	2
Interpretation	9		50	49	1
Chemistry	1		39	38	1
Physics	6		54	52	2
Earth Science	1		51	53	-2
General	1		39	39	0
Prediction from Data	6		50	50	0
Physics	6		50	50	0
Hypothesis Evaluation	3		61	58	3
Physics	1		35	33	2
Ecology	1		62	58	4
Zoology	1		86	84	2
Design Analysis	1		43	41	2
Physics	1		43	41	2
Social Studies	37		46	45	1
Recognition	10		50	50	0
Physical Environment	1		45	47	-2
Social Environment	1		56	54	2
Political/Economic Environment	5		49	49	0
History	3		51	50	1
Translation	4		40	39	1
Physical Environment	4		40	39	1
Interpretation	13		49	46	3
Physical Environment	3		39	37	2
Social Environment	5		54	52	2
Political/Economic Environment	2		50	46	4
History	3		51	46	5
Application	4		38	38	0
Physical Environment	1		30	28	2
Social Environment	2		37	37	0
Political/Economic Environment	1		49	50	-1
Analysis	6		44	43	1
Physical Environment	4		50	49	1
Social Environment	1		38	39	-1
History	1		26	25	1

Table F.2

Right Response Summary Results

Grade 3, Level 1

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference (State-Nation)
		District 3.7	State 3.7	Nation 3.7	
Reading Vocabulary	40		57	57	0
Translation	40		57	57	0
Recall of Synonym	40		57	57	0
Reading Comprehension	45		58	57	1
Recognition/Application	12		66	63	3
Literal Recall	12		66	63	3
Translation	10		59	57	2
Rewording/Context Clues	10		59	57	2
Interpretation	23		54	53	1
Main Idea	8		52	50	2
Descriptive Words	4		63	62	1
Conclusions	11		52	52	0
Spelling	44		73	73	0
Recognition/Application	37		75	75	0
Recall of Rule	37		75	75	0
Translation	7		62	64	-2
Context Clues	7		62	64	-2
Language Mechanics	20		61	60	1
Recognition/Application	20		61	60	1
Punctuation	10		63	60	3
Capitalization	10		60	60	0
Language Expression	30		62	61	1
Recognition/Application	10		55	57	-2
Usage	10		55	57	-2
Translation	4		72	70	2
Diction	4		72	70	2
Interpretation	8		72	69	3
Syntactical Relationships	8		72	69	3
Analysis	8		56	55	1
Organization	8		56	55	1
Mathematics Computation	48		69	67	2
Application	48		69	67	2
Addition	12		75	73	2
Subtraction	12		69	67	2
Multiplication	12		66	65	1
Division	12		66	64	2
Mathematics Concepts	25		66	67	-1
Recognition	8		69	69	0
Number Systems/Properties	3		54	56	-2
Geometric Relationships	5		78	76	2
Translation	5		84	83	1
Number Systems/Properties	5		84	83	0
Interpretation	12		57	59	-2
Number Systems/Properties	4		47	54	-7
Sets	3		74	75	-1
Measurement	4		55	55	0
Problem Solving	1		54	53	1
Mathematics Applications	25		57	58	-1
Interpretation	20		56	58	-2
Sets	4		66	68	-2
Geometric Relationships	1		60	61	-1
Measurement	5		53	53	0
Mathematical Sentences	4		55	60	-5
Problem Solving	4		49	52	-3
Reasoning	2		61	62	-1
Analysis	5		58	59	-1
Problem Solving	5		58	59	-1

Table F.3

Right Response Summary Results

Grade 6, Level 1

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 6.7	State 6.7	Nation 4.7	
Reading Vocabulary	40		64	68	(-4)
Translation	40		64	68	(-4)
Recall of Synonym	40		64	68	(-4)
Reading Comprehension	45		69	69	(0)
Recognition/Application	12		77	75	(2)
Literal Recall	12		77	75	(2)
Translation	10		69	69	(0)
Rewording/Context Clues	10		69	69	(0)
Interpretation	23		65	65	(0)
Main Idea	8		63	64	(-1)
Descriptive Words	4		71	74	(-3)
Conclusions	11		63	63	(0)
Spelling	44		79	79	(0)
Recognition/Application	37		81	80	(1)
Recall of Rule	37		81	80	(1)
Translation	7		70	70	(0)
Context Clues	7		70	70	(0)
Language Mechanics	20		70	69	(1)
Recognition/Application	20		70	69	(1)
Punctuation	10		68	67	(1)
Capitalization	10		71	72	(-1)
Language Expression	30		68	70	(-2)
Recognition/Application	10		58	66	(-8)
Usage	10		58	66	(-8)
Translation	4		79	79	(0)
Diction	4		79	79	(0)
Interpretation	8		75	76	(-1)
Syntactical Relationships	8		75	76	(-1)
Analysis	8		67	65	(2)
Organization	8		67	65	(2)
Mathematics Computation	48		87	80	(7)
Application	48		87	80	(7)
Addition	12		91	85	(6)
Subtraction	12		83	78	(5)
Multiplication	12		86	81	(5)
Division	12		86	77	(9)
Mathematics Concepts	25		75	76	(-1)
Recognition	8		73	75	(-2)
Number Systems/Properties	3		59	64	(-5)
Geometric Relationships	5		81	82	(-1)
Translation	5		91	89	(2)
Number Systems/Properties	12		91	89	(2)
Interpretation	4		71	71	(0)
Number Systems/Properties	3		65	69	(-4)
Sets	4		83	83	(0)
Measurement	1		66	66	(0)
Problem Solving	25		72	67	(5)
Mathematics Applications	20		70	70	(0)
Interpretation	4		69	70	(-1)
Sets	1		73	77	(-4)
Geometric Relationships	5		74	72	(2)
Measurement	4		64	65	(-1)
Mathematical Sentences	4		70	71	(-1)
Problem Solving	2		69	67	(2)
Reasoning	5		70	71	(-1)
Analysis	5		73	71	(2)
Problem Solving			73	71	(2)

[a]These differences are set off in parentheses to emphasize the point that these differences were not provided on the Right Response Summary results for Grade 6,Level I, students because comparable national normative data were not available.

Table F.3 (continued)

Right Response Summary Results

Grade 6, Level 1

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 6.7	State 6.7	Nation 4.7	
Reference Skills	20		68	64	(4)
Recognition	10		68	66	(2)
Parts of A Book	3		49	49	(0)
Dictionary Skills	7		75	73	(2)
Application	10		69	63	(6)
Parts of a Book	2		64	61	(3)
Library Use	8		70	63	(7)
Science	37		60	59	(1)
Recognition	6		46	50	(-4)
Earth Science	3		39	48	(-9)
Zoology	3		53	53	(0)
Classification	7		65	61	(4)
Chemistry	2		62	57	(5)
Physics	1		78	73	(5)
Botany	1		56	53	(3)
Zoology	3		65	63	(2)
Quantification	5		69	66	(3)
Physics	1		56	49	(7)
Zoology	4		73	71	(2)
Interpretation	9		59	58	(1)
Chemistry	1		52	47	(5)
Physics	6		62	62	(0)
Earth Science	1		60	61	(-1)
General	1		46	48	(-2)
Prediction from Data	6		57	56	(1)
Physics	6		57	56	(1)
Hypothesis Evaluation	3		67	65	(2)
Physics	1		35	38	(-3)
Ecology	1		73	68	(5)
Zoology	1		92	89	(3)
Design Analysis	1		53	53	(0)
Physics	1		53	53	(0)
Social Studies	37		57	57	(0)
Recognition	10		61	63	(-2)
Physical Environment	1		67	63	(4)
Social Environment	1		66	67	(-1)
Political/Economic Environment	5		59	62	(-3)
History	3		60	63	(-3)
Translation	4		43	46	(-3)
Physical Environment	4		43	46	(-3)
Interpretation	13		60	59	(1)
Physical Environment	3		43	47	(-4)
Social Environment	5		66	64	(2)
Political/Economic Environment	2		57	55	(2)
History	3		67	63	(4)
Application	4		54	54	(0)
Physical Environment	1		40	39	(1)
Social Environment	2		60	61	(-1)
Political Economic Environment	1		56	55	(1)
Analysis	6		55	54	(1)
Physical Environment	4		58	59	(-1)
Social Environment	1		59	54	(5)
History	1		37	37	(0)

[a]Differences are set off in parentheses to emphasize the point that these differences were not provided on the Right Response Summary results for Grade 6 Level I students because comparable national normative data were not available.

Table F.4

Right Response Summary Results

Grade 6, Level 2

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference (State-Nation)
		District 6.7	State 6.7	Nation 6.7	
Reading Vocabulary	40		65	70	-5
Translation	40		65	70	-5
Recall of Synonym	40		65	70	-5
Reading Comprehension	45		65	66	-1
Recognition/Application	8		76	76	0
Literal Recall	8		76	76	0
Translation	11		69	70	-1
Rewording	6		66	68	-2
Context Clues	5		72	72	0
Interpretation	17		59	61	-2
Main Idea	5		61	62	-1
Descriptive Words	4		57	60	-3
Conclusions	8		60	61	-1
Analysis	9		60	63	-3
Structure/Style	9		60	63	-3
Spelling	50		77	79	-2
Recognition/Application	42		80	81	-1
Recall of Rule	42		80	81	-1
Translation	8		64	67	-3
Context Clues	8		64	67	-3
Language Mechanics	20		69	69	0
Recognition/Application	20		69	69	0
Punctuation	10		68	68	0
Capitalization	10		70	70	0
Language Expression	35		63	65	-2
Recognition/Application	10		71	73	-2
Usage	10		71	73	-2
Translation	14		64	67	-3
Diction	14		64	67	-3
Interpretation	5		54	55	-1
Syntactical Relationships	5		54	55	-1
Analysis	6		58	57	1
Organization	6		58	57	1
Mathematics Computation	48		72	73	-1
Application	48		72	73	-1
Addition	12		78	80	-2
Subtraction	12		78	77	1
Multiplication	12		71	71	0
Division	12		59	61	-2
Mathematics Concepts	25		63	66	-3
Recognition	4		65	65	0
Geometric Relationships	4		65	65	0
Translation	3		72	70	2
Graphs	3		72	70	2
Interpretation	15		62	66	-4
Number Systems/Properties	5		61	67	-6
Sets	2		74	75	-1
Measurement	3		53	58	-5
Mathematical Sentences	1		60	62	-2
Problem Solving	4		63	70	-7
Analysis	3		59	61	-2
Measurement	1		54	60	-6
Problem Solving	2		61	62	-1
Mathematics Applications	25		63	67	-4
Interpretation	21		63	68	-5
Number Systems/Properties	1		70	74	-4
Sets	1		53	54	-1
Measurement	4		66	69	-3
Mathematical Sentences	5		61	67	-6
Problem Solving	8		62	67	-5
Reasoning	2		72	74	-2
Analysis	4		60	63	-3
Problem Solving	2		54	61	-7
Reasoning	2		67	65	2

Table F.4 (continued)

Right Response Summary Results

Grade 6, Level 2

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 6.7	State 6.7	Nation 6.7	
Reference Skills	20		69	68	1
Recognition	9		68	66	2
Parts of a Book	4		64	64	0
Dictionary Skills	3		84	82	2
Library Use	2		53	48	5
Application	11		69	70	-1
Dictionary Skills	5		70	71	-1
Library Use	6		68	69	-1
Science	36		56	56	-0
Recognition	6		50	50	0
Physics	2		53	56	-3
Earth Science	1		43	45	-2
Ecology	1		54	55	-1
Botany	1		41	46	-5
Zoology	1		53	44	9
Classification	7		69	66	3
Physics	2		65	64	1
Botany	1		77	70	7
Zoology	2		77	75	2
General	2		61	59	2
Quantification	6		74	74	0
Chemistry	2		65	65	-0
Zoology	4		79	78	1
Interpretation	6		41	42	-1
Chemistry	2		41	45	-4
Physics	1		43	40	3
Earth Science	1		29	31	-2
Zoology	2		44	46	-2
Prediction from Data	7		50	50	0
Chemistry	3		43	46	-3
Physics	3		55	54	1
Earth Science	1		53	53	0
Hypothesis Evaluation	3		51	54	-3
Chemistry	1		31	36	-5
Physics	1		67	71	-4
Earth Science	1		54	56	-2
Design Analysis	1		41	39	2
Zoology	1		41	39	2
Social Studies			55	57	-2
Recognition	37		53	56	-3
Physical Environment	13		65	64	1
Social Environment	2		50	51	-1
Political/Economic Environment	5		51	58	-7
History	5		49	58	-9
Translation	1		59	63	-4
Physical Environment	7		59	63	-4
Interpretation	7		57	58	-1
Physical Environment	5		45	44	1
Political/Economic Environment	1		60	59	1
History	3		63	68	-5
Application	1		52	54	-2
Physical Environment	8		46	50	-4
Social Environment	1		48	49	-1
Political/Economic Environment	1		51	54	-3
History	4		59	59	0
Analysis	2		57	57	0
Physical Environment	4		56	57	-1
Political/Economic Environment	2		58	57	1
	2				

Table F.5

Right Response Summary Results

Grade 11, Level 4

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference (State-Nation)
		District 11.7	State 11.7	Nation 11.7	
Reading Vocabulary	40		56	65	-9
Translation	40		56	65	-9
Recall of Synonyms	40		56	65	-9
Reading Comprehension	45		57	64	-7
Recognition/Application	3		40	45	-5
Literal Recall	3		40	45	-5
Translation	10		61	67	-6
Rewording	6		60	65	-5
Context Clues	4		62	71	-9
Interpretation	23		59	66	-7
Main Idea	9		55	65	-10
Descriptive Words	3		64	68	-4
Conclusions	11		61	66	-5
Analysis	9		54	63	-9
Structure/Style	9		54	63	-9
Spelling	30		64	69	-5
Recognition/Application	26		66	72	-6
Recall of Rule	26		66	72	-6
Translation	4		50	53	-3
Context Clues	4		50	53	-3
Language Mechanics	20		68	72	-4
Recognition/Application	20		68	72	-4
Punctuation	10		69	73	-4
Capitalization	10		67	71	-4
Language Expression	35		59	64	-5
Recognition/Application	10		67	72	-5
Usage	10		67	72	-5
Translation	10		42	50	-8
Diction	10		42	50	-8
Interpretation	5		61	59	2
Syntactical Relationships	5		61	59	2
Analysis	10		65	72	-7
Organization	10		65	72	-7
Mathematics Computation	48		59	67	-8
Application	48		59	67	-8
Addition	12		63	72	-9
Subtraction	12		57	64	-7
Multiplication	12		63	71	-8
Division	12		55	63	-8
Mathematics Concepts	25		59	67	-8
Recognition	5		55	63	-8
Number Systems/Properties	5		55	63	-8
Interpretation	12		62	69	-7
Number Systems/Properties	4		56	60	-3
Sets	3		67	69	-2
Geometric Relationships	3		56	72	-16
Measurement	1		82	89	-7
Problem Solving and Reasoning	1		64	76	-12
Analysis	8		59	66	-7
Geometric Relationships	1		68	74	-6
Mathematical Sentences	3		49	53	-4
Problem Solving and Reasoning	4		63	74	-11
Mathematics Applications	25		49	60	-11
Translation	2		53	66	-13
Measurement	2		53	66	-13
Interpretation	18		49	58	-9
Geometric Relationships	1		36	43	-7
Measurement	3		50	64	-14
Mathematical Sentences	6		51	57	-6
Problem Solving and Reasoning	8		48	59	-11
Analysis	5		47	62	-15
Problem Solving and Reasoning	5		47	62	-15

Table F.5 (continued)

Right Response Summary Results

Grade 11, Level 4

Content and Thinking Process Areas	Number of Items	Average Percentages Correct			Difference[a] (State-Nation)
		District 11.7	State 11.7	Nation 11.7	
Reference Skills	20		64	68	-4
Recognition	4		71	72	-1
Library Use	4		71	72	-1
Application	16		62	67	-5
Dictionary Skills	5		68	73	-5
Library Use	11		60	64	-4
Science	40		53	57	-4
Recognition	8		62	69	-7
Chemistry	2		74	79	-5
Physics	2		71	75	-4
Ecology	2		58	65	-7
Zoology	1		44	65	-21
Botany	1		50	53	-3
Classification	4		53	62	-9
Chemistry	1		46	57	-11
Ecology	3		55	63	-8
Quantification	1		50	46	4
Physics	1		50	46	4
Interpretation	8		49	55	-6
Chemistry	1		39	47	-8
Physics	4		48	54	-6
Earth Science	2		55	58	-3
Zoology	1		54	64	-10
Prediction from Data	6		54	58	-4
Chemistry	1		63	72	-9
Physics	1		45	47	-2
Earth Science	1		58	60	-2
Ecology	2		57	62	-5
Botany	1		46	44	2
Hypothesis Evaluation	8		52	54	-2
Chemistry	1		59	67	-8
Physics	1		76	79	-3
Ecology	1		43	36	7
Botany	3		47	51	-4
Zoology	2		48	48	0
Design Analysis	5		42	43	-1
Chemistry	1		50	53	-3
Ecology	2		43	44	-1
Zoology	2		37	39	-2
Social Studies	39		57	61	-4
Recognition	5		52	60	-8
Social Environment	1		51	60	-9
Political/Economic Environment	2		58	64	-8
History	2		47	56	-9
Translation	1		53	54	-1
Physical Environment	1		53	54	-1
Social Environment[a]	4		69	71	-2
People Interaction	4		69	61	-2
Interpretation	8		58	61	-3
Physical Environment	1		64	68	-4
Social Environment	5		55	59	-4
Political/Economic Environment	1		44	43	1
History	1		77	81	-4
Application	12		55	60	-5
Physical Environment	2		52	55	-3
Social Environment	4		53	55	-2
Political/Economic Environment	4		59	66	-7
History	2		57	60	-3
Analysis	9		58	61	-3
Physical Environment	2		66	70	-4
Social Environment	5		54	56	-2
Political/Economic Environment	2		61	68	-7

[a]Social Environment is not a thinking process area.